Amara L. Grapa

"EPSC 2017 Riga Local Organizing Outcomes"

For the European Commission: EPSC 2017 Riga Outcome Report

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn

Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

Summary of Outcomes

Participation Outcome. *The EPSC 2017 Riga had 808 participants from 40 countries with 1000 abstracts (650 Oral, 350 Poster presentations in 100 sessions). It was the largest single EPSC showing since the EPSC 2012 London meeting, and the largest number of countries, ever. There were 80 Latvians attending with the numbers from Finland, Estonia and Lithuania larger than usual too.*

Engagement of all levels of Society.

- *Communicate space to all of Latvia's and the Baltic's stakeholders ranging from school children to space companies to Parliament members.*

Our five key speakers: **Drs. Vaira Vīķe-Freiberga, Ene Ergma, Mathias Link, Dana Reizniece-Ozola, and Kārlis Šadurskis** gave helpful, interesting and informative (recorded) space-related presentations addressed to the international scientific community, to our Latvian space workers, to Latvia's youth, to the Baltic Public of all-ages, and to the Latvian policy makers. The presentations give weight to the educational and economical value of space work, what Latvian politicians can do better to support space, and the natural ties between the Baltic pagan cultures and the cosmos.

- *Communicate Baltic space capacities with the international space community to help build new and competitive space collaborations.*

An elegant 'Baltic Space Facilities' booklet was developed and printed (1000 copies), and given to the EPSC 2017 Participants,combining the efforts of the space workers in the Baltic Sea Region. Latvian Space Exhibits showcased Latvian space skills.

- *Provide space education to inspire our Latvian and Baltic young via their schools and families.*

Six hundred school kids learned about space during the EPSC week from the new portable Space Exhibits, and many thousands more will learn from Zinoo at their five science centers. Twenty-

five Latvian and Estonian space interns and their mentors were exposed to and inspired by the most cutting edge space work and evaluated themselves on their summer work. One Latvian team from LU won an early career poster. A fascinating space topic was discussed at the Public Event and recorded, with an introduction in Latvian by Minister **Kārlis Šadurskis** for the Latvian school teachers, as educational inspirational STEM material that they can view at their leisure.

- *Raise public awareness for the linkages between space and our deep Latvian and Baltic cultural traditions to build on the theme of 'space' for our cultural Future.*

We now have a recording by Latvia's most respected past politician (**Dr. Vaira Vīķe-Freiberga**) who shows how the cosmos and the Dainas are linked. We have given 210 new visitors to Riga a warm introduction to Baltic dancing and music at the Social Event.

- *Communicate EPSC 2017 space results to the Latvian and Baltic public to provide a rare glimpse into cutting-edge space work, and therefore real results of STEM careers. The city will find itself in the center of the international planetary news cycle for this week, hence a source of pride for the Latvians.*

For one week, Riga, Latvia was in the center of international space news. The International Press pieces number at about 600, reaching the most visible press such as The Economist. Latvians heard all about it, daily from all of their local news. An active streaming of one-sixth of the talks, including the keynotes are now archived. These 100 recorded talks will form the basis for a collection of inspiring lectures that could influence college-aged all over the world to go into planetary or space work.

Small Latvia has made a substantial contribution to the world's available planetary space education.

The European Planetary Science Congress

The European Planetary Science Congress (EPSC) is the meeting arm of the Europlanet consortium (Appendices). Europlanet is funded by a 10 MEur EC Horizon 2020 Advanced Infrastructure grant[1]. The EC Europlanet Grant Agreement covers the scientific organization through the company Copernicus Meetings. The EC Europlanet Grant Agreement does not financially cover the operational costs of the Local Organizing Committee (LOC). The members of the LOC of the EPSC vary from year to year, based on its location and host. The host for the 2017 EPSC Riga was Amara Graps (Grapa), Executive Director of Baltics in Space.

[1] http://cordis.europa.eu/project/rcn/198071_en.html

Grapa marketed the EPSC 2017 Riga meeting to the Europe-wide EPSC Board as a **Baltic meeting**, to raise the visibility of the Baltic space facilities to the international space community, while acknowledging the 100-year birthday celebrations in Finland, Estonia, Latvia and Lithuania. As the 2017 meeting is the first EPSC to embrace more than one country and the first in Central and Northern Europe, the EPSC local organisers can, therefore, provide a broad impact to meet many societal challenges.

Audience of the Opening Session of the EPSC 2017 Riga.

Part 1. EPSC 2017 Public Speakers.

Arrange high-profile EPSC 2017 public speakers with the goal to publicly communicate *space*- 1) *policy*, 2) *education*, 3) *science*, 4) *industry*, and 5) *ancient cultural values*. Invite key policy makers from the Latvian Parliament and Ministries.

Part 1 communicates 'Space' to Latvia's and the Baltic's stakeholders, ranging from school children to space companies to Parliament members.

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn

Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

A. Grapa arranged five keynote speakers for the EPSC 2017 Riga. The EPSC LOC Chair is responsible for paying the travel/accommodation for key speakers, if funding is asked or required. All speakers donated their time and all but one (for whom we had ready travel funds) donated their travel.

Opening Speakers 18. September: Dr. Vaira Vīķe-Freiberga & Dr. Ene Ergma

1) **Dr. Vaira Vīķe-Freiberga** . Past two-time Latvian president. International spokesperson for democracy and Latvian culture and current president of the Madrid Club.
Topic: Sun in the Latvian (***Culture***).

Recorded: The Latvian Mobile Telephone (LMT) company streamed her presentation:
http://straume.lmt.lv/lv/konferences/konferences/vaira-vike-freiberga/1003023

Details and subsequent support and feedback. Dr. Vaira Vīķe-Freiberga (VVF) spoke for approximately 20 min. 'Scientific models are metaphors just like folklore poetry is a built on metaphors' (02:30 in recording) she said. In those metaphorical activities, Science seeks understanding, and folklore poetry seeks meaning. Dr. Vaira Vīķe-Freiberga provided an important connection between Latvian culture and STEM subjects like our planetary science topic. Since it is recorded, the Latvian public can refer to her speech in the years to come. Latvian school (Rigas. vidusskola. 6) child: Vija Grapa presented VVF with flowers afterwards. Dr. Grapa summarized the cultural significance of VVF's presentation in her Overview presentation one hour later in the Opening Session (also streamed by LMT).

VVF's presentation was carried by the Latvian press:

- NRA.lv https://goo.gl/NZNxs6
- TVNET.lv https://goo.gl/jXBX24
- La.lv https://goo.gl/PqfAi2

and captured internationally on Twitter.
https://twitter.com/nick_attree/status/909661634066608128
https://twitter.com/europlanetmedia/status/909661962866393088
https://twitter.com/anitaheward/status/909662115757199360
https://twitter.com/MarsMetNet/status/909662668713275392
https://twitter.com/Chmee2/status/909664360955547648
https://twitter.com/LucaPlanets/status/909666102921322496
https://twitter.com/LeighFletcher/status/909669747834355712
https://twitter.com/anitaheward/status/909669795712212994
https://twitter.com/LucaPlanets/status/909672914781392898
https://twitter.com/lets_boldly_go/status/909678131535126528
https://twitter.com/Ines_Blgcm/status/90968072630772941 3
https://twitter.com/JLGalache/status/909683027953045504

https://twitter.com/gpikkio/status/909699406462676997
https://twitter.com/marruciic/status/909723336627904512

Opening Session Speakers: Vaira Vīķe-Freiberga and Ene Ergma

2) **Dr. Ene Ergma** Former two-time leader of the Estonian Parliament.
Topic: How Space was supported in the Estonian government in 2000s (***Policy***). This talk is policy-oriented to explain to the Latvian government some of her experience in supporting Space in the Estonian Parliament.

Recorded with All of the Opening talks: (00:31:00 to 00:51:00)
http://straume.lmt.lv/lv/konferences/konferences/opening/1003044

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn
Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

Details and subsequent support and feedback. Dr. Ergma spoke for approximately 20 min. Her space policy advice starts at about 00:41:00 in the recording (above). Latvian school (Rigas. vidusskola. 6) child: Vija Grapa presented Dr. Ergma with flowers afterwards. Dr. Grapa summarized the policy and communication significance of Dr Ergma's presentation in her Overview presentation 30 later in the Opening Session (also streamed by LMT).

Dr. Ergma's presentation was also captured internationally on Twitter.

https://twitter.com/europlanetmedia/status/909667331361710080
https://twitter.com/anitaheward/status/909669795712212994
https://twitter.com/LucaPlanets/status/909672914781392898
https://twitter.com/lets_boldly_go/status/909678131535126528
https://twitter.com/Ines_Blgcm/status/909680726307729413
https://twitter.com/FMIspace/status/910508818844536832
https://twitter.com/DrMLHarris/status/910513306078674946

Keynote Speakers 19. September : Dr. Mathias Link & Dr. Dana Reizniece-Ozola

These two speakers coincide with the EPSC 2017 Riga Industry Days, Sept. 19 and 20.

3) **Dr. Mathias Link** Space Affairs lead of the Luxembourg Ministry of the Economy.
Topic: The Luxembourg Space Resources Initiative (***Industry / Policy***). This talk introduces the European space workers, including those from the Baltic region, to 'New Space' and Asteroid Mining.

Recorded with all of the in-space resource utilization session talks: 0:00:00 -00:21:00
http://straume.lmt.lv/lv/konferences/konferences/scientific-constraints/1003270

Details and subsequent support and feedback. Dr. Link spoke for approximately 20 minutes. There was time for only one question afterwards. In the same session as Dr. Link was a paper by Galache and Graps (Grapa), which became a Europlanet press release about asteroid mining and then a press conference three hours later, in which Dr. Galache presented asteroid mining. These press pieces bootstrapped from Dr. Link's presentation to show that Luxembourg is already active-in-asteroid-science. The Europlanet asteroid mining press release was carried internationally by approximately 10 press pieces. The major pieces are below.

Europlanet Press Release:
What do we need to know to mine an asteroid? https://goo.gl/kSZcjG
Space Mining News: https://goo.gl/c7jEEY
Science Daily: https://goo.gl/VwDTjD
Leonard David: https://goo.gl/oBA69h

Physics World: https://goo.gl/65Gc4Z
Sky Nightly: https://goo.gl/V1RNMQ
Seeker: https://goo.gl/WPLoF5
INAF: https://goo.gl/1Vqftj

Key speaker: Luxembourg Ministry of the Economy Space Policy Lead: Mathias Link

Dr. Link's presentation was captured internationally on Twitter.
https://twitter.com/JLGalache/status/910021591999893504
https://twitter.com/asrivkin/status/910021937958670336
https://twitter.com/JLGalache/status/910022362279620608
https://twitter.com/asrivkin/status/910022507167649793
https://twitter.com/JLGalache/status/910023096370909184
https://twitter.com/asrivkin/status/910023245553954816
https://twitter.com/JLGalache/status/910025288712704000

4) **Dr. Dana Reizniece-Ozola** Minister of the Latvian Finance Ministry.
Topic: The value of Space in Latvia. (***Industry / Policy***). This talk was aimed at the Latvian space workers, to give a view for the status of where is Latvia in building a space industry.

Details and subsequent support and feedback. Dr. Reizniece-Ozola spoke for approximately 20 minutes, at the end of the session about interplanetary nanosatellites. There were approximately eight minutes of seven questions to her from the audience. In the same session was a speaker: Pekka Janhunen from the Finnish Meteorological Institute (FMI) about nanosatellites visiting hundreds of asteroids using a propulsion technology called E-sail. That FMI presentation was

also a press-release and press conference immediately after Dr. Reizniece-Ozola's presentation and was the highest-visibility press piece of the entire EPSC 2017 Riga.

Recorded separately *and* with all of the nanosatellite session talks:
The Latvian Finance Minister speaking:
http://straume.lmt.lv/lv/konferences/konferences/dana-reizniece-ozola/1003050
The Entire nanosatellites session:
http://straume.lmt.lv/lv/konferences/konferences/interplanetary-nanosatellites/1003272

Dr. Reizniece-Ozola's presentation was overshadowed in the Latvian media by the large press piece of her session by FMI's Pekka Janhunen. Nevertheless, her presentation had some Latvian press: delphi.lv https://goo.gl/13Q9oH and, with her political colleagues, was considered one of the EPSC 2017 Riga highlights: https://goo.gl/EQ9r5c

Moreover, there is now an important record for the scientists and space industry in Latvia regarding the country's path through ESA and how the Latvian government views its progress building space skills. The first question after her talk finishes by Ilgonis Vilks in the above recording, and Dr. Reizniece-Ozola's answer, explores that topic in more detail.

Key Speaker: Minister Dana Reizniece-Ozola

Dr. Reizniece'Ozola's presentation was captured internationally on Twitter :

https://twitter.com/JLGalache/status/910074591594385408
https://twitter.com/JLGalache/status/910076236231266304
https://twitter.com/DrMLHarris/status/910076755196678145
https://twitter.com/gpikkio/status/910077350980804610
https://twitter.com/mansLMT/status/910079609651286016
https://twitter.com/anitaheward/status/910079648259874816
https://twitter.com/DrMLHarris/status/910079774420295680

Keynote Speaker 21. September : Dr. Kārlis Šadurskis

This speaker coincides with the **EPSC 2017 Riga Public Event, Sept. 21.**

5) **Dr. Kārlis Šadurskis** Minister of the Latvian Ministry of Education and Science.
Topic: The importance of STEM education in space work. (***Education***). We were expecting through our contact (ESA liaison at the Latvian Ministry of Education and Science) a "Latvian teenagers" audience, but they were not there, so we filled a set of seats in the auditorium in the ten minutes before the Event with professional space workers from the EPSC Thursday poster session.

Dr. Šadurskis' talk was recorded:
http://straume.lmt.lv/lv/konferences/konferences/moon-mars/1003294

Public Event, Key speaker: Minister Kārlis Šadurskis

Details and subsequent support and feedback. Dr. Šadurskis spoke for approximately 13 minutes. He explained that space exploration is one of the key industries that can successfully attract young people to the field of engineering and applied sciences. "Working with space technologies and space sciences imposes high demands on intellectual preparation, while the desire to operate in the space industry can be trained by highly qualified specialists in physics, mathematics, chemistry, biology and other disciplines and natural sciences," He answered two questions from the audience.

He spoke in Latvian as a lead-in to the English language round-table Public Event discussion: *Moon, Mars and Beyond?,* where the role of astronauts in entrepreneurial New Space / Space 4.0 was explored. We will describe the EPSC 2017 Public Event in Part 4, below. As Dr. Šadurskis' talk in Latvian was recorded, we now have a valuable resource for the Latvian school teachers and their students.

Press. Dr. Šadurskis' presentation was discussed on the Latvian Educational Ministry website https://goo.gl/7r8skn and in the local Latvian press:

- EcoMedia.lv: https://goo.gl/CS4opx.
- TVNET.lv https://goo.gl/MEEYkk
- and on the Finnish blog: https://goo.gl/HKr431

Dr. Šadurskis' presentation was captured internationally on Twitter:
https://twitter.com/AnastasiaKokori/status/910905290895364097
https://twitter.com/Philae_MUPUS/status/910905446407577600
https://twitter.com/marruciic/status/910905709428080640

Speaker Costs

None of the key speakers required a speakers fee. We had ready funds for Dr. Ergma's travel from Estonia and for her Riga accommodations from the Interreg SpaceTEM project, 'policy' portion of the grant.

To put cost-numbers on the tremendous gift-of-speaking offered by these speakers, I've estimated costs for these speakers' preparation time, with typical high-profile speakers' costs and their additional travel costs, to treat their speaking as an *in-kind sponsorship* of the EPSC 2017 Riga meeting. What follows is subjective and an estimate only. Dr. Vīķe-Freiberga's in-kind costs: 5,000 Eur, Dr. Ergma: 2,100 Eur, Dr. Link: 1,180 Eur, Dr. Reizniece-Ozola: 1500 Eur,, Dr. Šadurskis: 1,000 Eur.
Total in-kind sponsorship from the five Speakers: € 10,780

Unavailable speakers: Dr. Grapa had also tried to have 1) Estonian-American space investor (Space-X, Planetlabs, etc.): Steve Jurvetson (dfj.com), through the company's communications office and the US Embassy Riga, and 2) European Commissioner: Elzbieta Bienkowska (DG GROW, through the local Latvia representation office. The two were unavailable.

Dr. Grapa key speakers communication costs: € 2,200
Total Part 1 Cost: €12,980

Part 2. EPSC 2017 LOC Space Facilities Booklet.

Support and Coordinate the Latvian and Baltic Space Facilities EPSC 2017 Baltic Space Facilities booklet. The Baltic space community had a rare opportunity to show the international space community our Baltic space facilities, to communicate the concept that the eight space facilities represents a regional space competency that rivals other European regions and to show specific space skillsets to build new international space collaborations.

Part 2 communicates Baltic space capacities with the international space community to help build new and competitive space collaborations.

Booklet Development

With financial support for the graphics artist: Egils Parups, for a second editor: Anna Reynolds, and for printing, Amara Grapa coordinated the development of the Baltic Space Facilities booklet with the eight space-related institutes and one museum:

Tartu Observatory --Estonia
Ventspils International Radio Astronomical Center (VIRAC) -- Latvia
University of Latvia / Institute of Astronomy: **Baldone Observatory** –Latvia
University of Latvia / Institute of Astronomy: **Riga Satellite Laser Ranging Station** –Latvia
University of Latvia : **Canders Space Exploration Museum** –Latvia
Institute of Environmental Solutions (Cesis) –Latvia
Moletai Astronomical Observatory –Lithuania
University of Helsinki, Planetary Systems Research group –Finland
Finnish Meteorological Institute FMI (Helsinki) --Finland.

These facilities provided information about the space facilities' past history, current status, photos, associated people skillsets, and contact information. Amara Grapa wrote the Introduction with Juris Žagars, and Anna Reynolds, the Table of Contents. The Latvian Investment Agency (LIAA) gathered text and photos from the Latvian space institutes, while Grapa gathered text and photos from the remaining non-Latvian space institutes.

The Baltic Space Facilities booklet required editing to 'speak' to the audience of the professional planetary scientists. The booklet chapters also required editing for homogenization of details for each of the chapters; that is, not too many details, not too little. Dr. Grapa provided those two sets of edits. Our second editor: Anna Reynolds provided a third level of editing so that the final output was smooth and highly readable.

The graphics artist: Egils Parups provided a beautiful cover and inside graphics layout that invited people to read. The booklet was not too heavy or thick, so slipping it inside of briefcases and backpacks was easy for the EPSC participants. This booklet was distributed to 800 participants with the Conference Programme book and the participant's badge at the EPSC-2017 Registration desk.

Example of what each participant received at the EPSC 2017 Riga Registration desk.

Additional booklets were displayed in several stands around the LIAA, Latvian Space Facilities Exhibits near the largest three conference rooms.

One view of the LIAA Latvian space facilities exhibits plus one stand of extra booklets.

The primary virtual home of the Baltic Space Facilities booklet is at the www.balticsinspace.eu web site: https://goo.gl/gxWnJn where a pdf can be downloaded: https://goo.gl/ZJP5bj . The licensing of the booklet is a Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) license. This is a proprietary license that requires copies or adaptations of this booklet to be released under the same or similar license as the original. This allows the other institutes to adopt and modify versions too. Baltics in Space is carrying the responsibility to keep the content current for the Baltic space workers.

Booklet Costs

For financial support of the booklet, Amara Grapa pushed this document through several paths: 1) Through a contribution to a (finally failed) VIRAC-led Interreg EstLat-2020 'ALSPACET' bid in Spring/Summer 2016, then, 2) in a separate proposal to the Latvian Finance Minister, and then, with the new Baltics in Space nonprofit, in two proposals to **3)** to the Latvian Investment Agency and **4)** the European Commission Latvia representation office. **The paths: 3) and 4) were successful** for funding the booklet development, with Grapa underpaid. Grapa has made

estimates of the costs incurred by LIAA and by the institutes themselves for producing their (words + photos) contributions. Those are included below.

3. **LIAA Costs** (guestimates): graphics artist (1000 Eur) + Communication-- between themselves and with Latvian Institutes and me-- (1000 Eur) + Printing (2400 Eur) = **total 4,400 Eur**
4. **EC + Baltics in Space Costs.** [a. Graphics: amendments + preproduction: Egils Parups at Baltics in Space (300 Eur). b. Editing. Anna Reynolds at Baltics in Space (730 Eur). c. Editing. Amara Grapa at Baltics in Space. (170 Eur).] = **total 1,200 Eur**

* **In-kind Institute Costs** (guestimates): FMI (1,000 Eur) + PSR (1,000 Eur) + TO (200 Eur) + IES (200 Eur) + LU (3 facilities, 300 Eur) + VIRAC (200 Eur) + Moletai Obs. (200 Eur) = **total 2,100 Eur**

* **Amara Grapa Costs** (project development, communication, editing) = **total 6,830 Eur**

Total Part 2 Cost: €14,530

Part 3. EPSC 2017 Floor Exhibits.

Invite, communicate and assist the Europlanet Industry liaison to build planetary space industry floor exhibits on the conference floor next to the meeting rooms. Support and Coordinate the nine Latvian and Baltic Space Facilities EPSC 2017 Baltic Space Facilities Exhibits to present their space skills to the Conference participants.

Part 3 follows up Part 2 to provide the necessary face-to-face communications between our Latvian and Baltic space facilities and space companies to establish new collaborative space work projects.

The Conference (second) Floor Exhibits provided some linkage to the Baltic professionals. The EPSC 2017 conference floor showed Exhibits from 1) the Finnish Meteorological Institute (FMI), 2) from LIAA, to show five Latvian space institutes, plus 3) an exhibit from a Finnish company: Reaktor Space (Helsinki), and 4) from a Latvian company: Cryogenic & Vacuum Systems (Ventspils).

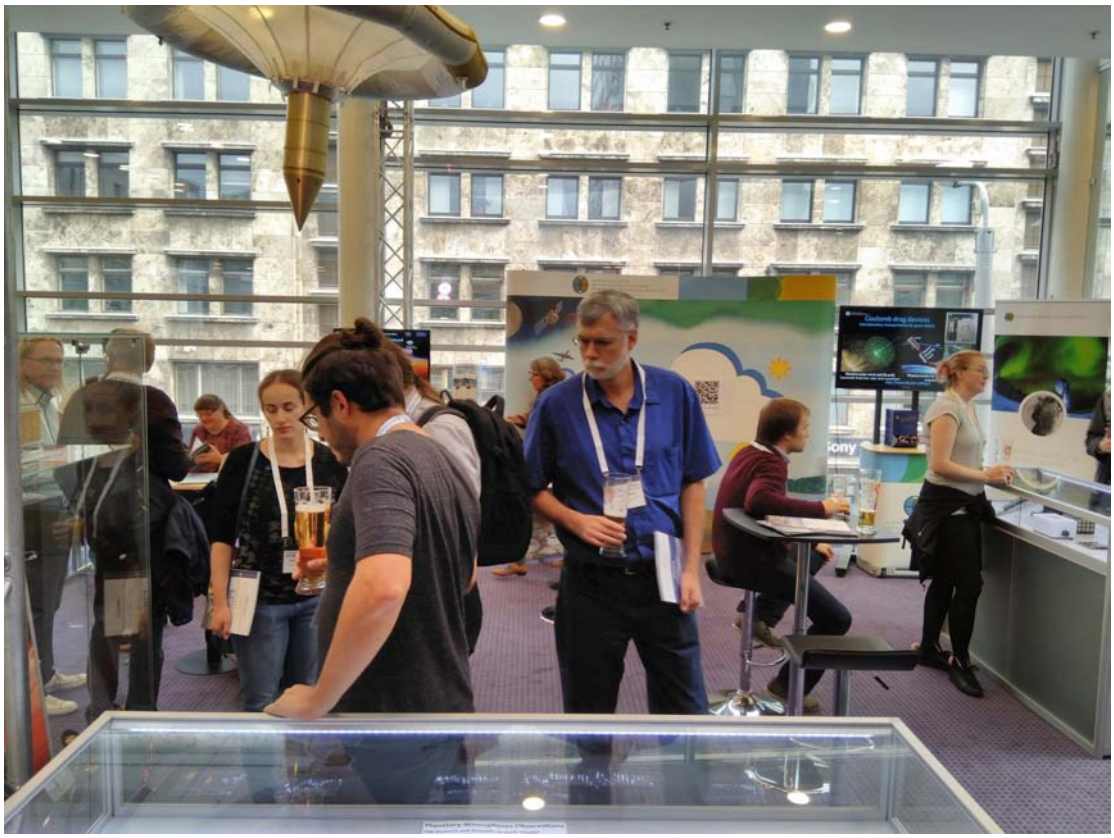
With respect to our original grant proposal text, the Europlanet liaison focused on the 'Industry Days', not the professional exhibits. Therefore, the rest of this text doesn't discuss the Industry Days part of the conference. Relevant parts to this 'professional' section include Grapa's inclusion of the Baltic space workers into the EPSC scientific program, and the support of the Baltic people's registration fees so that the space workers could afford to attend as participants.

Exhibits Development

The two largest sets of displays were by FMI and LIAA. LIAA's displays were rooted in wooden pedestals that each encased a small model of a key feature of the space institute's work, such as a model airplane for the IES ARSENAL multi-spectral airplane and a 3D printed model of the 32-m VIRAC radio telescope. While rooted in wood, the displays used modern technology with sequential-running screens of relevant information for each of the institutes. The pedestals were spaced nicely so that one didn't feel crowded.

Another view of the LIAA Latvian space facilities exhibits.

Next to the LIAA wooden pedestals was FMI's Exhibit, which displayed working representations of most of FMI's space mission contributions. The contributions were encased in glass cases rented from a Riga glass cases company found by Amara Grapa.



One view of the Finnish Meteorological Institute (FMI) Exhibits.

The floor-to-ceiling windows next to the Exhibits of FMI and Reaktor provided good lighting and an 'open' feeling which was felt all the way to the center of the floor. The same kinds of windows on the other side of the hotel on the conference floor provided good lighting for the posters next to the three smaller conference rooms.

The FMI Exhibit included a Mars lander called: "MetNet", which the hotel trussed up in a sophisticated way to hang from the ceiling. The FMI team skillfully used Twitter to bring people to their side of the conference floor when there were particular maintenance actions with MetNet, such as filling the lander with more air (!). It was a very effective technique; soon a small crowd of people gathered around that side of the conference floor and then lingered, looking at the other Exhibits.

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn
Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

Another view of the FMI exhibits, with the Martian lander: "MetNet"

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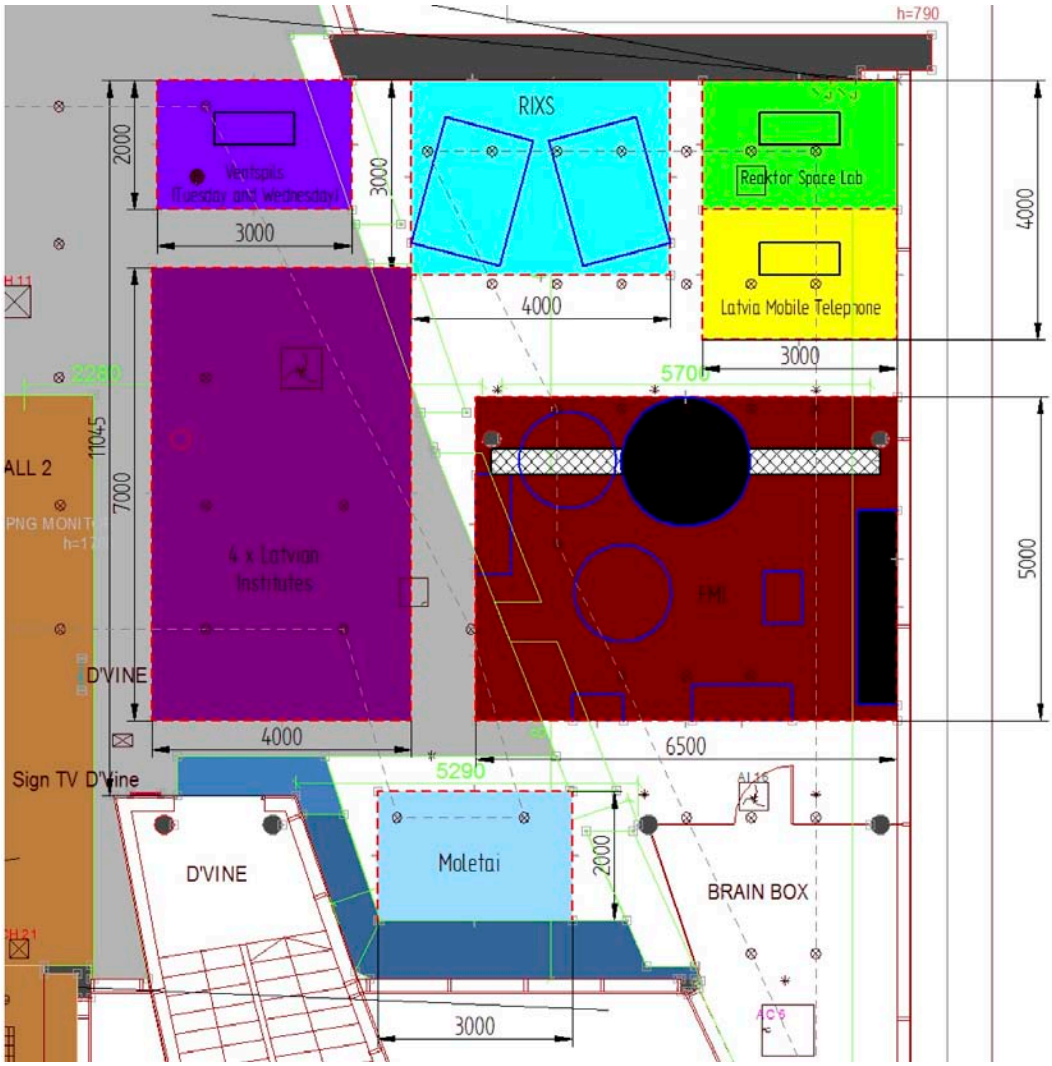
The LMT 100-km rocket display served as a pseudo-exhibit-advertisement for the Latvian Mobile Telephone company. The best location, upon consideration by everyone, was not embedded within the other exhibits, but instead in a prominent place between the 'Jupiter' room and the 'Saturn' conference rooms. It was a fun backdrop for conference participants to take selfies and added to the space artifacts on the second floor.

Vaira Vīķe-Freiberga and the LMT 100-km rocket exhibit.

Exhibit Managers

After Amara Grapa's request for help to FMI, Drs. Harri Haukka and Maria Genzer (FMI) became the EPSC 2017 "Exhibit Managers" starting in late June 2017. In middle June 2017, the two visited Riga and saw for themselves the EPSC 2017 hotel site. For organizing the Exhibits on the Conference floor, Harri and Maria communicated with the Copernicus Meetings, the Radisson Blu hotel conference manager and the other Exhibitors. They used space CAD software to organize the total floor space, including consideration of the 350 posters. I attribute the good spatial feeling of the second floor exhibit space to their careful care. Their help was invaluable. I've guestimated their in-kind costs with the other costs below.



Second-floor plan for the Exhibits from FMI's Harri Haukka.

EPSC 2017 Riga Exhibit floor discussion with Mars mission managers. We are discussing collaborations with Latvian geophysicists.

EPSC 2017 Riga Registration fees

The EPSC fee structure proposed in April 2017 by the EPSC Chairman and head of Copernicus Meetings: 550 Euro for the professional planetary scientist would have made attendance by Baltic space workers prohibitive. Grapa sought a conversation with the EPSC and Europlanet managers to describe what are typical salaries for space workers in the Baltic Sea Region and how to support the Baltic people's registration fees so that the space workers could afford to attend as participants. After letters, we began to have several telecons to solve the issue.

The solution was 1) a lower registration fee than usual: 420 Euros, 2) 100 bursaries of 300 Eur for inclusive countries, to discount the space workers costs, suitable not only for Early Career scientists, but for *all ages* and 3) a recognition that few *Professional* planetary scientists exist in the Baltic Sea Region (EE, LV, LT). Therefore those who might want to attend would fit the *Amateur* or *Teacher* rate, which is significantly reduced rate from the professional: 65 Eur. In fact, the solution 3) was the solution which the Baltic people used most often at the EPSC 2017.

The many registration fee discussions took many turns, for example, Grapa's suggestion: what if the participants' registration fees included their country resident location to give point to a tiered registration fee? In which we learned that such a fee structure is prohibitive by EU equality laws. I would be interested to know how other international meetings decide their fee structure when their EU meetings are held in lower-income countries.

Europlanet also included Ukraine into the list of 'Inclusive' countries for which the bursaries were applicable because Grapa engaged the Kharkiv polarimetry group early in the EPSC abstract submittal process. Grapa, in the Summer of 2017, gained a 500 Eur sponsor support from the American Astronomical Society Division of Planetary Scientists to aid in the Kharkiv's travel and accommodation costs for the EPSC 2017 Riga. With additional travel support from the University of Helsinki, Planetary Systems Research group (K. Muinonen), the four Ukraine scientists could attend the EPSC in Riga. Grapa's intention for supporting the Kharkiv astronomers' EPSC 2017 attendance, was to hold discussions with Baldone Observatory director regarding a potential retrofitting of that telescope with a polarimeter. Such capability raises the Baldone Schmidt's telescope's suitability to provide asteroid observations for the asteroid mining community. That goal was successful: The scientists from Kharkiv and Baldone met each other during the EPSC and discussed that topic.

Kharkiv, Ukraine polarimetry group @ EPSC with financial assistance by Planetary Systems Research Group (U Helsinki), and the Division of Planetary Sciences of the American Astronomical Society via Baltics in Space. Beginnings of a collaboration.

The telecons to resolve the registration fee issue turned into weekly EPSC 2017 Management meetings on every Friday morning starting in May 2017. The weekly meetings were important for Dr. Grapa to solve many LOC issues with the rest of the EPSC Management team.

Inclusion of professional Baltic space workers

Relevant parts to this 'professional' section include Grapa's inclusion of the Baltic space workers into the EPSC scientific program. Here we are including Finland, because of the geographical position of the Local Organizing Committee. The final statistics (http://www.epsc2017.eu) show 808 participants from 40 countries. For the Baltic Sea Region countries, the participant numbers show: Latvia: 80 (10%), Finland: 36 (5%), Estonia: 15 (2%), Lithuania 2 (0.3%). Together these four countries' participants numbered: 133 and 17% of the total participants.

One of two Poster Sessions at the EPSC 2017 Riga.

Exhibits Costs

Initially, Amara Grapa pushed the financial support of the Baltic professional Space Exhibits through the same funders as those she choose for the Baltic Space Facilities booklet: 1) Through

a contribution to a (finally failed) VIRAC-led Interreg EstLat-2020 bid in Spring/Summer 2016, then, 2) in a separate proposal to the Latvian Finance Minister. Then, with the new Baltics in Space nonprofit, she proposed to **3)** to the Latvian Investment Agency. **The path: 3) was successful** for funding the Latvian space facilities Exhibits, with Grapa underpaid. She provided LIAA about 40-50 pages in total for Latvian space exhibit ideas and contact information to aid their communications with the institutes. Grapa has made estimates of the costs incurred by LIAA and by the institutes and the companies themselves, for producing their Exhibits contribution. Those are included below.

3. **LIAA Exhibit Costs** (guestimates): for the materials and time to develop their five Latvian space facilities exhibits = **total 25,000 Eur**
4. **Other Baltic Space Facilities Exhibit Costs** (guestimates): [a. FMI (2,500 Eur). b. Reaktor Space (1,300 Eur). c. Cryogenic & Vacuum Systems (800 Eur).] = **total 4,600 Eur**

* **FMI Exhibit Manager Costs** (guestimates): including one HEL-RIX Riga conference hotel travel for two FMI persons and part-time work on this task from June 2017 through Sept 17, 2017: **total 6,000 Eur**

* **Amara Grapa Costs** (Space Exhibits project development and communication-- 7000 Eur) + Reg. Fee discussions and bursary support -- 800 Eur + session invitations-- 200 Eur) = **total 8,000 Eur**

Total Part 3 Cost: €43,600

Part 4. Education. EPSC 2017 'Solar System for Kids' Exhibit and more

Coordinate and support a ground floor interactive exhibit to educate school-age children about the solar system and space.

Part 4 provides space education to inspire our Latvian and Baltic young via their schools and families.

The main goal of this European Commission Latvia contract is space awareness and STEM education generally for Latvia's youth. While this education part four, at the time of the contract preparation, considered only the Kids' Exhibits, it is suitable section to describe the full, education-related components of the EPSC local organizing, because Dr. Grapa put the Baltic young into every niche of space education available: 1) inclusion of the young Interreg SpaceTEM interns to participate in the set of EPSC Early Career Scientist programs (Science Flashes, Poster Awards), 2) inclusion of Baltic space enthusiasts to help Copernicus Meetings,

and be paid, for working at the EPSC, 3) the EPSC 2017 Public Event to highlight an intriguing space topic to inspire the Latvian teenagers to think about space, and 4) the 'Solar System for Kids' Exhibits, to inspire the Latvian grade school kids about space-related activities.

Interreg SpaceTEM interns

The Interreg SpaceTEM is an EU Structural Funds project to train Estonian and Latvian young people on our Baltic space facilities and to mentor entrepreneurial skills. The EPSC 2017 Riga offered an opportunity to present one's new space work to an international community of one's peers. The educational value to present one's work at a young age to a scientific community cannot be overstated.

Interreg SpaceTEM team

When we learned in March 2016 that Riga won the 2017 EPSC bid, the SpaceTEM project development was already underway with the submittal deadline only a couple of weeks away. It was an easy vehicle in which to allocate some EPSC 2017 funds in our proposed budget to support the young people's, and their mentors', EPSC 2017 participation. And then SpaceTEM won.

In the Summer of 2017, the Estonian and Latvian project trained 25 interns at Tartu Observatory, the Ventspils International Radio Astronomical Center and in Riga at: Baldone Observatory and

the Riga Satellite Laser Ranging Station. The 25 interns had 10 weeks of time to develop new space skills. The SpaceTEM Summer 2017 results were prepared by the students with their mentors' assisting in 10 posters, arranged separately by Copernicus Meetings, and presented as 'Early Career' scientists to the international scientific community. These ten posters were then judged at the Early Careers Poster session, September 21.

EPSC 2017 Riga Early Career Poster Awards

There were two sets of winners that night, one was a team: Anni Kasikov and Rudolfs Treilis from SpaceTEM's, Latvia-Baldone Observatory for their solid scientific results of identifying by spectroscopy a group of new carbon stars in the Schmidt telescope data.

Copernicus Meetings EPSC 2017 Baltic workers

The company funded by the European Commission Europlanet grant to implement the scientific sessions of the EPSC is Copernicus Meetings, based on Goettingen, Germany. They have staff members whom they take to every EPSC meeting. However, they seek additional, local, space-interested, youth, as well, to work on the conference floor. Copernicus' requirement for the EPSC 2017 Riga work, was that the students be enrolled in high school or at a University and with some courses in (and a passion for) astronomy, space or STEM topics. Here was another paid path to involve Baltic / Latvian youth with a passion for space at the EPSC. Dr. Grapa advertised for the positions through social media, and Copernicus hired six Baltic people of age: late teens-early 20s to work at the registration desk and in the six rooms, running the computers which held the scientists electronic presentations. During quiet times, the young had the opportunity to read the posters or hear the scientists' discussions.

Some of the Latvian and Estonian crew working for Copernicus Meetings

EPSC 2017 Riga Public Event: Thursday, September 21

The Why. In Latvia, the European Space Agency (ESA) responsibility goes through the Ministry of Education and Science instead of the Ministry of the Economy, as in other EU countries. When it comes time to pay the ESA bill, the payment comes from the same source of money as the teacher's salaries, causing friction between the teachers and the space workers. The general Latvian society doesn't see Space as an opportunity or an economic opportunity. They see it as a liability. The goal of this Public Event was to reach the Latvian teachers through their students to show the opportunity and excitement of space.

Public Event Title: The Moon, Mars, and Beyond.

The participants of the Round Table discussion were:

Amara Graps (Baltics in Space) Guiding the discussion.

Kārlis Šadurskis (Minister of the Latvian Ministry of Education and Science). Gave an introduction of STEM careers for space work.

JL Galache (Aten Engineering, Founder and Chief Technology Officer) to represent the voice of 'New Space'.

Jānis Ķirpītis (Zinoo Science Center, Latvian amateur space rocket mission) After some substitutions, he was supposed to talk from an astronaut's point of view.

Bernard Foing (European Space Agency, International Lunar Exploration Working Group (ILEWG), Principal Project Scientist for SMART-1), he was the voice of robotic missions.

The theme. Today, space is changing rapidly. We have amazing new images sent back by international space missions, like Cassini. Private industry is becoming a major participant (Space 4.0 or 'New Space') by supplying launch vehicles, spacecraft, instruments and astronauts. Citizen scientists are participating, too, by analysing data, making observations or even building their own spacecraft. Space 4.0 changes the roles of all interested players including the roles of human explorers. This 'democratisation' of space points to a large and exciting universe in which all parts of society are engaged. If governments are not the only entities responsible for space activities, *what are the new roles in Space 4.0?*

The Public Event was designed for the Latvian teenagers and their schoolteachers. Dr. Grapa's arrangement with the ESA liaison at the Ministry of Education and Science, is that the Ministry would carry the Event, including advertisement and promotion, and support the Kazakh cosmonaut being provided by LIAA. Then, Dr. Grapa's responsibilities would center solely on providing the other two speakers: 1) a New Space worker and 2) a space agency robotics mission expert.

At the EPSC 2017 Riga Public Event: Roundtable discussion.

The Outcome was not exactly that, but we accomplished the intended goals. We included a talk by the Latvian Minister of Education and Science to the Latvian teachers and their students, spoken in Latvian. We had an interesting and inspiring roundtable discussion with this particular Theme for the teenagers to see, spoken in English. And because it was recorded, the teenagers and teachers can see this talk at their leisure.

The Moon, Mars, and Beyond.
http://straume.lmt.lv/lv/konferences/konferences/moon-mars/1003294
This Public Event highlighted the challenges of working with large government entities and fundraising to pay for one of the speakers.

We built the Public Event around a Kazakh cosmonaut, offered to us by LIAA and the Latvian Ministry of Education and Science in Spring/Summer of 2017. When the Latvian Ministry of Education and Science doubled their financial contribution to the Solar System for Kids Exhibit, Dr. Grapa developed the theme for their astronaut, hitting on a serious topic that is of great value to the New Space / Entrepreneurial space. Unfortunately, the cosmonaut: Aidyn Aimbetov, at a late date couldn't make the Event. We then intended Latvia's only candidate to Mars One: Pauls Irbins, to be his replacement, but Pauls became ill the morning of the Event. So we went forward with Pauls' colleague: Jānis Ķirpītis, an engineer, citizen scientist on Latvia's 100-km Rocket project.

Dr. Grapa's intended speaker to represent New Space ran into financial challenges with the path of the U.S. Embassy Riga. Dr. Grapa was offered by the Embassy to pay for her speaker, but they dropped the project at a very late date. She then tried to fund JL Galache with the British Embassy (the speaker is a multinational: USA / ES/ UK citizen), but it was too late for them to find funds to support Dr. Galache. The financial supporter of Dr. Galache at the end was Europlanet.

The EPSC 2017 Riga Public Event. We are watching the first rocket launch of the 100-km project.

For the robotics mission expert, the European Space Agency was to provide Dr. Grapa's intended speaker (a Cassini mission project manager). However, he was deemed not suitable for the Theme by the space agency, and they did not find a replacement until two weeks before the Event. Their choice: Bernard Foing, was at the end, a perfect choice.

The last challenge was our Audience. The Latvian teenagers weren't in the Audience. The Ministry's promotion of the Event was not effective. The only young we had in the audience was Dr. Grapa's 8 year old daughter, and two other children age about 7 and 5 years. We put them in the center, near the front of the auditorium of the Jupiter room (the hotel's largest conference room). Our Europlanet and EPSC colleagues (Bernard Foing, JL Galache, Anita Heward) rounded up scientists from the Thursday evening poster session, which was going on outside of the Jupiter room. After ten minutes, they gathered about thirty planetary scientists to fill one set of bleachers. LMT's cameras did not focus on the empty bleachers.
Dr. Grapa enlisted the help of two translators: Anna Reynolds and Aija Abens to assist with Audience translations, but they were not needed.

As for the Roundtable discussion, the discussion was interesting and fun. JL Galache was as engaging as a speaker as Bernard Foing. Jānis Ķirpītis was a perfect Latvian link for our Roundtable and local space enthusiast counterpoint to the two other gentlemen in his speaking role.

The young Audience of the EPSC 2017 Riga Public Event

The Solar System for Kids Exhibits

The 'Solar System for Kids' Exhibits below the main conference floor, at the street level of the Radisson Blu Latvija, was approximately ten Exhibits open from 1200-1700, September 18-22. The Exhibits were visited by about 600 kids during the five days of the congress week. The Exhibits were developed by Zinoo with a 10 KEur grant from the Latvian Ministry of Education and Science. The Exhibits were in the style of Zinoo's interactive exhibits with Latvian language. There were two contributions to the Zinoo products: An excellent meteorite display by Meteoriti.lv and a spherical projector: 'Planets in a Room' by (Italian company) Speak Science. We could hear the kids' squeals of delight from below (connected by an easy escalator).

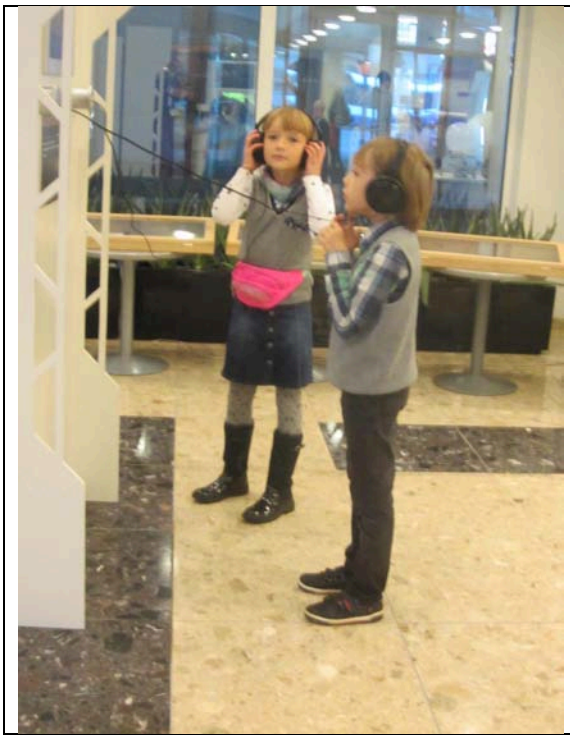
Escalator from the Conference Floor to the Solar System for Kids Exhibits

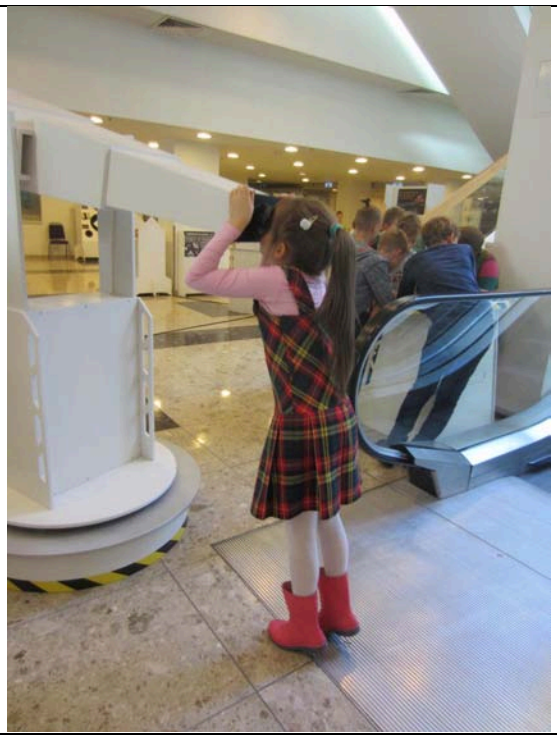
The scientists on the Conference floor appreciated and referred to the Kids' Exhibits below. They visited the Exhibits and referred to the Mars rover exhibit in the Public Event recorded talk and was referred to on Twitter.

Solar System for Kids Mars Rover Exhibit

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn

Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps





Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn

Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn

Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

The Zinoo exhibits, designed to be portable, will be shown at consecutive Zinoo science centers in the next year-few. As there are five Zinoo centers in Latvia, we expect to reach 10,000+ kids, even in the Latvian countryside.

International Planetary Science Education.

With respect to space education, the EPSC 2017 Riga provided a 'container' for international professional space education for years in the future. The 1000 EPSC 2017 Riga abstracts are available here:
https://www.epsc2017.eu/

Go to the left panel and select one of the ways to browse.

For example a session.
https://meetingorganizer.copernicus.org/EPSC2017/sessionprogramme

Then you select a 'program group', such as Missions. People can upload their presentations to the web site, if they wish. Some have uploaded their presentations already.

Planetary Science Stories:
See the 'For science + stories:' in the 'Outreach / Press' part of this Report, Part 6.

Education Costs

a. SpaceTEM Interns: EPSC Attendance (SpaceTEM grant: 5000 Eur) + Grapa EPSC-related SpaceTEM proposal development and extra EPSC support with registration invoices, poster titles and boards (200 Eur) = **total 5,200 Eur**

b. Copernicus Meetings Baltic workers: [1. Copernicus (1,800 Eur). 2. Amara Grapa Advertisements (200 Eur)] = **total 2,000 Eur**

c. EPSC 2017 Riga Public Event: Thursday, September 21. In-kind Costs (guestimates).
To put cost-numbers on the tremendous gift-of-speaking offered by these speakers and our two translators, I've estimated costs for these speakers' preparation and execution time, to treat their speaking as an *in-kind sponsorship* of the EPSC 2017 Riga meeting. The New Space worker: JL Galache, additionally required travel and accommodation and registration. The costs of the Minister: Kārlis Šadurskis has already been taken into account in Part 1. A. Grapa's costs for the development (proposals, communications) and support of these speakers and the topic are added to the costs.

Janis Kirpitis (100 Eur) + Bernard Foing (300 Eur) + JL Galache (1,320 Eur) + Anna Reynolds (50 Eur) + Aija Abens (50 Eur) + Amara Grapa (3,400 Eur) = **total 5,220 Eur**

d. Zinoo Solar System for Kids Exhibits: [1. Zinoo: 10,000 Eur 2. Amara Grapa Discussions and communication (200 Eur)] = **total 10,200 Eur**

Total Part 4 Cost: €22,620

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn
Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

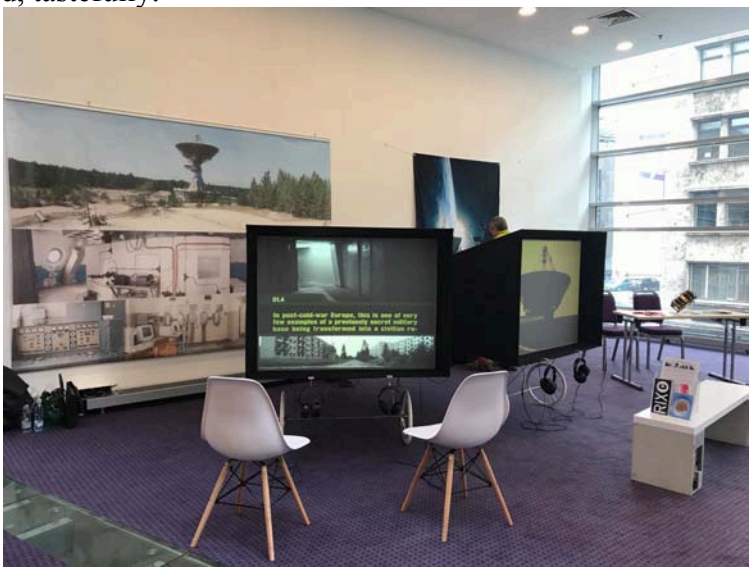
Part 5. EPSC 2017 Art-Science Exhibit and Cultural Links.

Coordinate and support artists planning to develop art-science projects about the solar system and space.

Part 5 raises public awareness for the linkages between space and our deep Latvian and Baltic cultural traditions to build on the theme of 'space' for our cultural Future.

Two Cultural-Science Exhibits : RIXC & Moletai Ethnocosmological Museum

There were two Cultural-Science Exhibits: 1) by RIXC and by 2) Moletai Ethnocosmological Museum on the EPSC 2017 Riga conference floor, which were informative and beautiful, filling the space we had, tastefully.



View of RIXC (two) Exhibits

The RIXC Exhibit consisted of two objects, both video displays with places for the viewer to sit and listen to the explanation with headphones. The first object was the history of the Irbene secret radio telescopes since its origin in the 1970s until Latvia's Re-Independence. The video display showed the efforts of Latvian astronomers to protect this unique object from destruction, as well as the first set of restorations in 1990s, after Re-Independence.

Another View of RIXC Exhibits

The second video was devoted to the international sound art, radio and satellite technology symposium "Acoustic space laboratory" (2001), which was attended by more than 30 international artists, radio amateurs and radio activists. The authors of the video "RT-32. Acoustic Space Laboratory" are Rasa Šmite and Raitis Šmits; the work was co-produced by artist Mārtiņš Ratniks; producer – RIXC. The original version of video "RT-32" (2002) is part of the collection of the future Latvian Museum of Contemporary Art.

RIXC's involvement was due to suggestions from the Latvian Ministry of Culture LV-100 group after two detailed January meetings -- Grapa prepared presentations to the LV-100 group and spent time in follow-up communication. There was a strong interest in LV-100 group to provide space as an inspirational theme for Latvia's young people. However, there were no funds for Dr. Grapa's or other people's time (Dr. Grapa has no staff) to involve the Latvian artists. Dr. Grapa was referred by the Cultural Ministry to a cultural funding source with a late January 2017 deadline, for which she could also refer artists. Dr. Grapa wrote a supporting letter for RIXC for their proposal and reviewed their proposal. RIXC won their proposal but their grant received 1/3 of the funds that they requested.

Moletai Ethnocosmological Museum Exhibit

The Moletai Ethnocosmological Museum links humans' pagan history to the cosmos. Dr. Grapa travelled to Moletai Ethnocosmological Museum on May 1, 2017 w/Juris Zhagars to engage them for the EPSC 2017 Riga.

This museum is one of the largest science museums in Lithuania, the largest public astronomical observatory in Europe, and it was our only Lithuanian exhibitor. The Moletai Ethnocosmological Museum Exhibit consisted of a large booth with flyers, fold-up sundials and a person to talk to you about their museum. They exhibited the entire week.

Other Linkages linkages between space and our deep Latvian and Baltic cultural traditions

A high-impact presentation for *public awareness for the linkages between space and our deep Latvian and Baltic cultural traditions* in addition to these exhibits, is the Opening Session talk by Dr. Vīķe-Freiberga. She linked the Latvian epic Dainas, with the most frequently referenced word: saules (sun) to every day life and to the scientific cosmos study. Her talk was recorded. See Part 1 for those results.

In addition, the mid-week Social Event at ALA Pagrabs was designed to give the participants a sample of the Baltic style of singing and dancing that is deeply embedded inside of the Baltic folk traditions. The Social Event was attended by about 210 scientists and was enjoyed greatly.

Margaret Harris @DrMLHarris
"This is genuinely one of the most adorable conference social activities I've ever seen, and I go to lots of conferences. Well done, #EPSC2017" https://goo.gl/dd13zb

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn
Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

Cultural Linkages Costs

RIXC Exhibit Costs (my guestimates): for their materials and time to develop their two Latvian radio science art exhibits = **total 2000 Eur**

Moletai Ethnocosmological Museum Exhibit Costs (guestimates): Transportation and materials (500 Eur) for their large exhibiting booth (1000 Eur), and staying the entire week (500 Eur). = **total 2,000 Eur**

Social Event at ALA Pagrabs Costs: OGA Events (1150 Eur) + ALA Pagrabs (6800 Eur) = **total 7,950 Eur**

* **Amara Grapa Costs**: Travel to Moletai Ethnocosmological Museum May 1 (200 Eur) + RIXC Proposal Review and Letter of Support (200 Eur) + Meetings with LV-100 group, preparation of presentation and follow-up communication (600 Eur) + Social Event Support (200 Eur) = **total 1,200 Eur**

Total Part 5 Cost: €13,150

Part 6. EPSC 2017 Public Science Communication.

Support the Latvian and Baltic Science Communications by providing links to the science journalists and public communicators to the Europlanet communications coordinator. During the EPSC 2017, there will be 15-20 international news releases of cutting edge planetary science results in addition to local human-interest stories related to the four countries' space workers.

Part 6 communicates EPSC 2017 space results to the Latvian and Baltic public to provide a rare glimpse into cutting-edge space work, and therefore real results of STEM careers. The human-interest space worker stories will dispel the view of space workers as an elite group but instead they will show space workers as humans like any of us. As these 15+ international news stories originate in Riga, Latvia, the city will find itself in the center of the international planetary news cycle for this week, and therefore a source of pride for the Latvians.

There was a large international and local press following for the EPSC 2017 Riga, which was aided by the Deep White (LV) Press office of the Latvian Mobile Telephone company (LMT), see below. We also had around 20 journalists on site, including from the AFP and DPA press associations.

EPSC 2017 Riga Press Releases

1) Lava tubes: the hidden sites for future human habitats on the Moon and Mars. https://goo.gl/ESKSkC
2) Crash Scene Investigation reveals resting place of SMART-1 impact. https://goo.gl/aYsuRY
3) Solar eruption photobombed Mars encounter with Comet Siding Spring. https://goo.gl/Wvqexu
4) What do we need to know to mine an asteroid? https://goo.gl/kSZcjG
5) Nanosat fleet proposed for voyage to 300 asteroids. https://goo.gl/b77HCn
6) Size matters in the detection of exoplanet atmospheres. https://goo.gl/qqMXq5
7) Devilish source of dust in atmosphere of Earth and Mars. https://goo.gl/fdehbB
8) Studies of Crater Capital in the Baltics show impactful history. https://goo.gl/1DL5au
9) 2017 Farinella Prize Awarded to Simone Marchi. https://goo.gl/nMN4xd

10) Europlanet Press' Highlights of the EPSC 2017 Riga https://goo.gl/EQ9r5c

Two Press Briefings

The Europlanet/EPSC press briefings were recorded, thanks to Livia Giacomini at Europlanet. You can see them here, but they still need to be edited, as there are a few minutes of dead time at the beginning:
Press Conference 1: https://goo.gl/C12VgP
Press Conference 2: https://goo.gl/QEJw4P

One-Minute Videos

Thilina Heenatigala, Europlanet's social media manger, filmed a number of 1-minute videos of participants at the conference that he will be releasing on social media over the coming weeks.

Interview with Ilgonis Vilks and Juris Žagars by Latvian News broadcaster: LNT

Streaming and Archiving

LMT streamed/archived 105 talks of the 650 total talks.
The Latvia Mobile Telephone (LMT) EPSC 2017 Riga Archive: https://goo.gl/txDQT2

The LMT archive shows 19 videos, which includes the Opening (as one 'talk') and the Thursday Public Event (as one 'talk') and sessions from each day as one 'talk'. All recordings will be archived by LMT for the international public for the long term.

What's Wild in the Worlds of Planetary Science

From the 105 recorded talks, we will have an EPSC sample. With these, we will select about 30 talks, which will form the basis of a collection to inspire young people all over the world

to go into planetary science.

The Recordings Feat. The graphic, below, shows what was recorded on the Stream from the six rooms of concurrent talks. I have embedded the links to the LMT recorded sessions inside of the Storify timelines too, see below. With six rooms of talks and one camera crew, we needed to select a session with the greatest potential number of good talks, for which we could have permissions. An additional constraint is the minimum time to set up (30 min) in another room for the camera crew.

Streaming Permissions

The permissions were the bugaboo. Some scientists have publications in process, which means that their results are embargoed until the official release by the journal. And we were late ourselves with the quantity of work before the congress. The press officer made a permissions Doodle poll for each of the selected sessions, which received some good feedback, but there were still many permissions to gain. Dr. Grapa worked on some of those permissions the weekend before and on the first day-two, and then the press officer received additional help from Mariana of the Europlanet's Science Office. Mariana actually stood at the door of the sessions and asked scientists as they entered for their permission. We shifted our strategy to record all talks for which we had permissions. That would allow the greatest choices to further define the 'What's Wild in the Worlds of Planetary Sciences' collection for the young people.

We had challenges with the Juno related talks. The authors didn't answer the Doodle poll or emails. Then right before the session, they all said 'no', which created a crisis for the LMT camera crew. LMT had to fill that streaming time-slot with some pre-recordings of something else. So we have fewer recordings for that day. That was the most challenging issue, as far as I know, with the streaming. LMT provided an extremely professional crew.

Latvia's contribution to international Planetary Science

In the big picture, 'tiny' Latvia did something for the European Planetary Science Congress that had never been done before by the previous host cities. It provided streaming and archiving of a selection of talks, which is a valuable resource for the international planetary space community that will be remembered and referred to often in the next few years.

	Timeblock	Time	Jupiter room/ Omega 1	Saturn room/Omega 2	Uranus room / Alfa	Neptune room / Beta2	Venus room /Gamma1-2	Mars room / Beta1	Mercury room / Ksi	Press conference room
Sunday		15:00–19:00							uncil meeting	
		16:00–18:00								
Monday	1	09:00–10:30	Opening (CE2)							
	2	11:00–12:30	TP8	MG1	EX3- Formation and Dynamical Evolution of	TP6	LF1	SB7		
	Lunch	12:45–13:45							SMW1.4	
	3	14:00–15:30	TP8	SB5 Ceres and Vesta - 10th anniversary of Dawn Special Session	EX3	TP7	LF4	MT8		
	4	16:00–17:30								
	5	17:45–19:15			EX4		LF2	MG3		
Tuesday	1	09:00–10:30	SB3	TP8	EX4	TP1	MT3/SB13 - In-Space Resource	MT1		
	2	11:00–12:30					MT4 - Interplanetary			
	Lunch	12:45–13:45							SMW1.2	
	3	14:00–15:30	SB3	TP8	[redacted]	TP2	MG2	MT1		
	4	16:00–17:30			OPS3	TP2 - Mercury Science and Observation		MT13		
	5	17:45–19:15	Poster session group 1							
Wednesday	1	09:00–10:30	TP4 - Mars Interior and Surface	SB3	OPS3	OPS4/TP8.2	MT15	SB10		
	2	11:00–12:30	TP4	SB3 - What do we know and what don't we						
	Lunch	12:45–13:45							SMW1.1	
	3	14:00–15:30	TP4	SB3	OPS1	OPS4/TP8.2	SB6 - KBOs and Centaurs	AM1	MT5	
	4	16:00–17:30		MT12				AM2	SMW1.5	
		18:30	Social event (CE3)							
Thursday	1	09:00–10:30	OPS1 - Outer planets systems and Pluto	SB4	SB9	TP5/OPS5/SB14	TP8.1	OEP2		
	2	11:00–12:30			OEP4	MT2			SMW1.9	
	Lunch	12:45–13:45	General Asser							
	3	14:00–15:30	OPS1 - Outer planets systems and Pluto	SB4	LSE3	MT2	SB8	OEP1	SMW1.3	SMW1.6
	4	16:00–17:30		EX1		SMW1.7		OEP3		
	5	17:45–19:15	Poster session group 2							
	6	19:15–21:00	Public event (CE7)			ECS Reception (CE6, 19:30)				
Friday	1	09:00–10:30	LSE1 - Lunar Science and Exploration	OPS2	SB2	SB1	EX2/MT16	MT6	SMW1.8	
	2	11:00–12:30								
	Lunch	12:45–13:45								
	3	14:00–15:30	LSE1 - Lunar Science and Exploration	OPS2	SB2	SB12	AB1			
	4	16:00–17:30	LSE2 - Site selections for lunar outposts							

AB1 - Astrobiology
AM1 - Amateur collaboratior
AM2 - Juno Ground-Based Su
EX1 - Recent advances and n
EX2/MT16 - Future instrume
EX3 - Formation and Dynami
EX4 - Observations and mod
LF1 - Earth Analogues
LF2 - The distributed Planeta
LF4 - Cometary, asteroidal ar
LSE1 - Lunar Science and Exp
LSE2 - Site selections for luna
LSE3 - Towards a Moon Villag
MG1 - Planetary magnetosp
MG2 - Planetary Space Weat
MG3 - Planetary, solar and e
MT1 - Future Planetary missi
MT2 - Planetary in situ meas
MT3/SB13 - In-Space Resour
MT4 - Interplanetary nanosa
MT5 - Defense of Planet Eart
MT6 - Advances in Planetary
MT8 - Solar and Planetary Da
MT12 - Towards a Moon Villa
MT15 - European Vision 206
OEP1 - Policy & Sociocultural
OEP2 - Education, capacity b
OEP3 - Planetary science and
OEP4 - International lunar de
OPS1 - Outer planets system
OPS2 - Ocean worlds and Icy
OPS3 - Juno at Jupiter and Su
OPS4/TP8.2 0 - Aerosols and
SB1 - Planetary Rings
SB2 - Observing and modellir
SB3 - What do we know and
SB4 - Asteroids: Observation
SB5 - Ceres and Vesta - 10th
SB6 - KBOs and Centaurs
SB7 - Sample return missions
SB8 - Observing and modellir
SB9 - Imaging, photometry a
SB10 - Interpretation of obse
SB12 - Small Bodies Near anc
TP1 - General Planetology: O
TP2 - Mercury Science and O
TP4 - Mars Interior and Surfa
TP5/OPS5/SB14 - Planetary C
TP6 - General planetary dyna
TP7 - Impact processes in the
TP8 - Atmospheres and aero
TP8.1 - Mars' upper atmosph

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn
Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

Twitter

There were 3610 posts on Twitter during the conference week (hashtag: #EPSC2017) by the planetary scientists, with 7 million impressions and a 2.3 million reach on Twitter, making it 'trend in Latvia during the EPSC week.

Science Stories via Storify

We can learn good planetary science from the scientists' own reporting, and with the human element too. Grapa has encapsulated the EPSC 2017 Riga 'Story' so far in Storify, emphasis on the 3300 posts on Twitter.

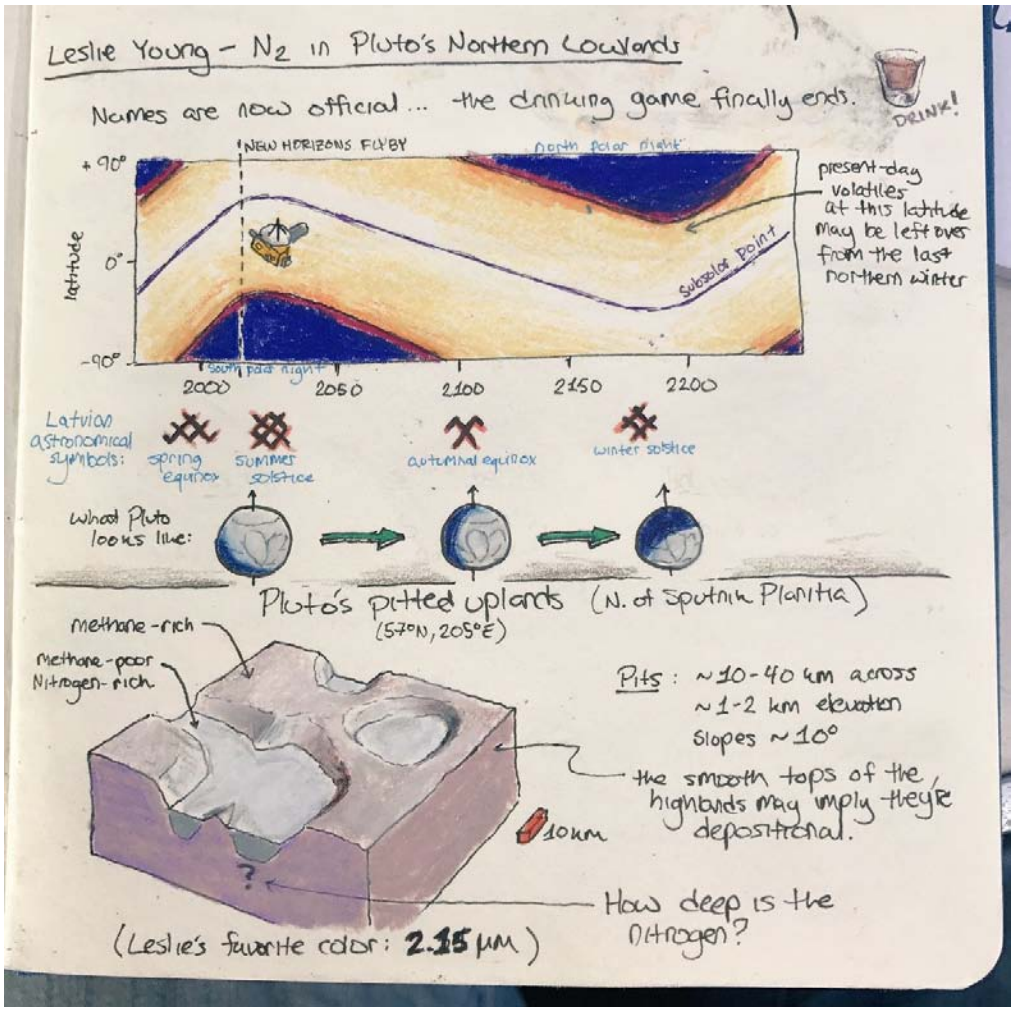
- Pre-EPSC (before 17 September 2017): https://goo.gl/VFQsfK
- Sun-Tues 17-19 September 2017: https://goo.gl/iYyrj6

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn
Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

- Wed-Thur 20-21 September 2017: https://goo.gl/Bmh8p9
- Friday 22 Sepember 2017: https://goo.gl/GNvjG1
- Post-EPSC (after 22 September 2017): https://goo.gl/iBSyhv

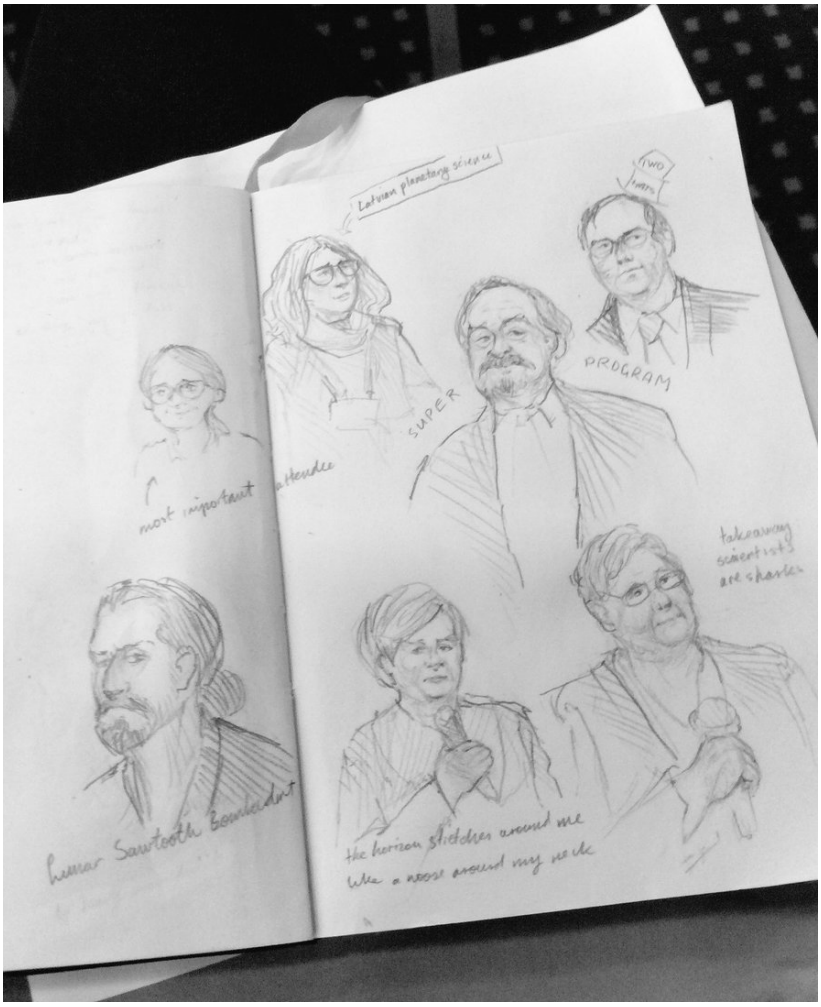
Science-Art via Planetary Scientists who are also artists

James Tuttle Keane (@jtuttlekeane) attended the EPSC 2017 Riga, producing roughly 30 pages (2 drawings per page?) of the planetary science results, which he posted on Twitter. His art interpretations are aiding the planetary science field in significant ways and we were very lucky to have him at our conference. https://goo.gl/tBJKgu



One of James Tuttle Keane's 30 science results sketches. Here we see Leslie Young's Pluto atmosphere result. She went to particular effort to learn the symbols for the Latvian solstices.

Leila Qışın (@winterhazelly) also attended the EPSC 2017 Riga, producing roughly 30 sketches with an emphasis on the scientists themselves, which she posted on Twitter. These are yet another warm and personal dimension of our planetary science community. We were very lucky to have **two** artists / planetary scientists at our conference. https://goo.gl/6mB8Wi



One of Leila Qışın's 30 people faces results sketches. These are the speakers from the Opening Session.

Press Coverage

There were at least 460 International and 90 Latvian Press Mentions of the EPSC 2017 Riga. We'll list the Latvian press first.

Latvian Press

What follows are **90 Latvian Press Mentions**.
The following has been provided by Deep White, LMT's press consultancy.. I've deleted the LETA pieces which required a subscription. Many thanks for this compilation

Publicity before the EPSC opening

TV

- LTV1 morning newscast Rīta Panorāma
  Interview with Valdis Avotiņš, Director of the Ventspils International Radio Astronomy Center
  http://replay.lsm.lv/lv/ieraksts/ltv/106497/telefonintervija-ar-valdi-avotinu/

Radio

- LR4 morning news broadcast Домская площадь
  Telephone interview with scientist Juris Žagars and Ventspils University College researcher Boris Rjabovs
- http://replay.lsm.lv/lv/ieraksts/lr/92223/kongress-planetarnih-nauk-v-rige-budet-iskat-zhizn-v-ko/
- Article in Lsm.lv, referring to LR4 morning news broadcast
  http://lr4.lsm.lv/lv/raksts/domskaja-ploschad/kongress-planetarnih-nauk-v-rige-budet-iskat-zhizn-v-kosmose.a92223/

News portals

- Interviews with Amara Graps about the European Planetary Science Congress + interview audio file
- http://eng.lsm.lv/article/culture/culture/space-conference-on-the-launchpad.a249684/
  http://eng.lsm.lv/article/culture/culture/major-space-conference-under-way-in-riga.a250508/

After the first press-release and media invitation

News agencies

- BNS (13.09)
  http://news.lv/BNS/2017/09/13/nakosnedel-riga-norisinasies-eiropas-planetaras-zinatnes-kongress
- BNS (17.09)
  http://news.lv/BNS/2017/09/17/sonedel-riga-norisinasies-eiropas-planetaras-zinatnes-kongress

News portals

- http://zparks.lv/latvija-ieverojams-mobilo-datu-paterina-pieaugums-videji-5gb-uz-sim-karti-mus-ierindo-topa/

- http://www.tvnet.lv/tehnologijas/zinatnes/675499-septembri_riga_notiks_eiropas_planetaras_zinatnes_kongress
- http://www.starspace.lv/lv/citas-zinas/eiropas-planetologijas-kongress-2017-26052017.html
- https://kursors.lv/2017/09/06/septembri-riga-notiks-eiropas-planetaras-zinatnes-kongress/
- https://boot.ritakafija.lv/tehnologijas/it-sasniegumi/septembri-riga-notiks-eiropas-planetaras-zinatnes-kongress/
- http://www.1br.lv/septembri-riga-notiks-eiropas-planetaras-zinatnes-kongress/
- http://baltnews.lv/riga_news/20170904/1020769208.html
- https://www.goriga.info/news/1781682
- http://rus.delfi.lv/news/daily/latvia/vike-frejberga-rasskazhet-ekspertam-nasa-o-roli-solnca-i-kosmosa-v-latyshskih-dajnah.d?id=49235781

Publicity of Press-release "9 facts you did not know about Latvia's space research"

News portals

- https://boot.ritakafija.lv/tehnologijas/it-sasniegumi/9-fakti-ko-tu-nezinaji-par-latvijas-sasniegumiem-kosmosa-izpetes-joma/
- http://www.la.lv/ari-slavenais-sputnik-1-neiztika-bez-latviesiem-9-fakti-ko-tu-nezinaji/
- http://www.tvnet.lv/tehnologijas/nozares_jaunumi/678760-9_fakti_ko_tu_nezinaji_par_latvijas_sasniegumiem_kosmosa_izpetes_joma
- http://brivbridis.lv/9-fakti-ko-tu-nezinaji-par-latvijas-sasniegumiem-kosmosa-izpetes-joma/
- http://lat.vesti.lv/news/27451
- https://ecomedia.lv/9-fakti-ko-tu-nezinaji-par-latvijas-sasniegumiem-kosmosa-izpetes-joma/

Publicity of press-release "6 significant space research projects, whose representatives will attend Riga next week"

News portals

- https://kursors.lv/2017/09/17/6-nozimigi-kosmosa-izpetes-projekti-kuru-parstavji-nakamnedel-pulcesies-riga/
- http://lat.vesti.lv/news/6-kosmosa-noslepumi-kuru-atklajeji-pulcesies-riga?27264
- https://boot.ritakafija.lv/tehnologijas/it-sasniegumi/sesi-nozimigi-kosmosa-izpetes-projekti-kuru-parstavji-nakamnedel-pulcesies-riga/
- http://www.tvnet.lv/tehnologijas/zinatnes/677777-top_6_kosmosa_izpetes_projekti_kuru_parstavji_sonedel_pulcesies_riga

Publicity after the opening of the EPSC on 18.09

TV

- TV3 evening newscast Ziņas (video starting from 25:07) https://tvplay.skaties.lv/parraides/tv3-zinas/874758?

- Raksts skaties.lv, balstoties uz sižetu
  Article in news portal Skaties.lv, referring to the TV3 evening newscast Ziņas
  https://skaties.lv/zinas/zinatne-un-tehnologijas/zinatne/vike-freiberga-stasta-par-saules-un-kosmosa-nozimi-latvju-dainas/
- ПБК evening newscast Латвийское время
  http://www.1tv.lv/news/12498-riga-kosmicheskaya-stolica.html
- Article in Russian news portal Plainnews.ru, referring to ПБК evening newscast Латвийское время
  http://plainnews.ru/video-channel-186689.html

News portals

- http://lat.vesti.lv/news/riga-klust-par-eiropas-kosmosa-galvaspilsetu?27307
- https://www.diena.lv/raksts/latvija/zinas/video-riga-klust-par-eiropas-kosmosa-galvaspilsetu-vike-freiberga-saka-ievada-vardus-14180799
- http://bnn.lv/kongresa-priekssedetaja-sonedel-riga-ir-eiropas-kosmosa-nozares-galvaspilseta-246032
- http://www.la.lv/vaira-vike-freiberga-tautasdziesmas-mekle-dzives-jegu/
- http://www.tvnet.lv/tehnologijas/zinatnes/677846-riga_klust_par_eiropas_kosmosa_galvaspilsetu
- https://boot.ritakafija.lv/tehnologijas/it-sasniegumi/riga-klust-par-eiropas-kosmosa-galvaspilsetu/
- http://mernieks.lv/article/2699
- http://www.la.lv/tiesraide-riga-atklaj-eiropas-lielako-kosmosa-zinatnes-notikumu/
- http://m.nra.lv/latvija/riga/222664-tiesraide-riga-atklaj-eiropas-lielako-kosmosa-zinatnes-notikumu.htm
- http://www.tvnet.lv/tehnologijas/nozares_jaunumi/677770-tiesraide_riga_atklaj_eiropas_lielako_kosmosa_zinatnes_notikumu

Publicity of the EPSC after a presentation of Minister of Finance of Latvia Dana Reizniece-Ozola on 19.09 and after the 2nd day of the EPSC and first press briefing

TV

- LNT morning newscast 900 sekundes
  https://tvplay.skaties.lv/parraides/900-sekundes/874914?autostart=true
- Article in news portal Skaties.lv, referring to the LNT morning newscast 900 sekundes
  https://skaties.lv/zinas/zinatne-un-tehnologijas/verienigs-notikums-riga-pulcejas-izcilakie-kosmosa-zinatnieki/
- LNT daytime newscast Dienas ziņas (video starting from 08:05)
  https://tvplay.skaties.lv/parraides/lnt-dienas-zinas/875083?
- LNT evening newscast (video starting from 23:27)

https://tvplay.skaties.lv/parraides/lnt-zinas/875164? (Grapa is at 26:00)

- TV3 evening newscast Ziņas (video starting from 15:46) https://tvplay.skaties.lv/parraides/tv3-zinas/875229?
- Article in news portal Skaties.lv, referring to the TV3 evening newscast Ziņas https://skaties.lv/zinas/zinatne-un-tehnologijas/zinatne/kosmosa-zinatnieki-riga-prezente-ideju-par-derigo-izraktenu-ieguvi-no-asteroidiem/
- LTV7 evening newscast Сегодня вечером http://ltv.lsm.lv/lv/raksts/19.09.2017-riga--centr-vseh-planet.id106607/
- Article in news portal Lsm.lv, referring to the LTV7 evening newscast Сегодня вечером http://rus.lsm.lv/statja/novosti/obschestvo/latvija-stala-centrom-kosmicheskoy-nauki.a250749/

Press

- Auseklis, rubric "Latvijas ziņas" / "Latvian news" http://monitorings.leta.lv/item/PF74313F4-9729-4DFD-83CB-785CE429BDB4/

News agencies
LETA photo gallery
http://www.leta.lv/photo/album/7BA84DF8-82CD-46DB-ABFA-1FB1316E4EA0?force_lang=lat

News portals

- http://rus.tvnet.lv/novosti/ekonomika/371420-reyznietse_ozola_latviya_vlozhila_v_proekty_po_izucheniyu_kosmosa_32_mln_evro
- http://www.delfi.lv/news/national/politics/kosmosa-izpetes-projektos-latvija-lidz-sim-ieguldijusi-3-2-miljonus-eiro.d?id=49256735
- http://bnn.lv/reizniece-ozola-kosmosa-izpetes-projektos-latvija-lidz-sim-ieguldijusi-3-2-miljonus-eiro-246320
- http://www.mixnews.lv/ru/science/news/227384_latviya-vlozhila-po4ti-4-mln-evro-v-izu4enie-kosmosa-opros/
- http://www.gorod.lv/novosti/285825-latviya-vlozhila-pochti-4-mln-evro-v-izuchenie-kosmosa
- http://www.baltic-course.com/rus/good_for_business/?doc=133338
- http://ru.focus.lv/news/latvija-vlozhila-v-proekty-po-izucheniyu-kosmosa-32-mln-evro?17926
- http://rus.jauns.lv/raksts/aktualno/254424-latviya-vlozhila-v-proekty-po-izucheniyu-kosmosa-32-mln-evro
- https://regnum.ru/news/2323964.html
- http://vesti.lv/news/latviya-tratit-milliony-evro-nalogov-v-izuchenie-kosmosa-1
- http://bnn-news.ru/latviya-vlozhila-3-2-mln-evro-v-proektyi-po-issledovaniyu-kosmosa-178497

- http://www.infotop.lv/article/ru/latvija-pretenduet-na-zvanie-kosmicheskoi-derzhavi-i-vkladivaet-millioni-v-izuchenie-kosmosa
- https://www.baltictimes.com/latvia_has_invested_eur_3_2_million_in_space_exploration_projects/
- https://www.diena.lv/raksts/pasaule/cits/zinatnieks-pirmais-komercialais-guvums-no-asteroidiem-bus-udens-ieguve-14180879
- http://www.la.lv/tiesraide-riga-atklaj-eiropas-lielako-kosmosa-zinatnes-notikumu/
- http://nra.lv/latvija/222803-tiesraide-eiropas-planetaras-zinatnes-kongresa-2-diena.htm
- http://www.tvnet.lv/tehnologijas/zinatnes/677930-tiesraide_eiropas_planetaras_zinatnes_kongresa_2diena

Publicity after 3rd day of the EPSC

- http://nra.lv/latvija/222949-tiesraide-eiropas-planetaras-zinatnes-kongresa-3-diena.htm

Publicity after the 4th day EPSC and after 2nd press briefing and after Public Event

Radio

- LR1 science news program Zināmais nezināmajā
  http://replay.lsm.lv/lv/ieraksts/lr/92123/ints-kesans-spuldziti-nomainit-kosmosa-stacija--tas-ir-/
- LR1, morning news broadcast Labrīt at 08.43
  Interview with the EPSC representative Anita Heward
  http://lr1.lsm.lv/lv/raksts/stasti/riga-aizvadita-verieniga-eiropas-planetaras-zinatnes-kongresa-ne.a92472/

News portals

- Article in news portal Lsm.lv, referring to the LR1 morning news broadcast Labrīt
  http://www.lsm.lv/raksts/dzive--stils/tehnologijas-un-zinatne/planetaras-zinatnes-kongresa-riga-pulcejas-800-kosmosa-petnieki.a251000/
- Article in news portal Lsm.lv, referring to the LR1 science news program Zināmais nezināmajā
  http://lr1.lsm.lv/lv/raksts/zinamais-nezinamaja/dzive-starptautiskaja-kosmosa-stacija.a92123/
- https://www.diena.lv/raksts/pasaule/cits/zinatnieki-_cassini_-misija-sniedza-milzigu-ieguldijumu-kosmosa-izpete-14181044
- http://jauns.lv/raksts/arzemes/254725-zinatnieki-cassini-misija-sniegusi-loti-vertigu-ieskatu-saturna-un-tam-blakus-esosa-meness-un-pavadona-sistemas
- http://lat.vesti.lv/news/27392
- http://www.lvportals.lv/visi/preses-relizes/289942-sadurskis-kosmosa-izpetes-nozare-raisa-jauniesu-interesi-par-eksaktajam-un-inzenierzinatnem/
- http://www.tvnet.lv/tehnologijas/zinatnes/678476-sadurskis_kosmosa_izpetes_nozare_raisa_jauniesu_interesi_par_eksaktajam_un_inzenierzina

tnem

- http://www.la.lv/tiesraide-riga-atklaj-eiropas-lielako-kosmosa-zinatnes-notikumu/
- http://www.tvnet.lv/tehnologijas/zinatnes/678259-tiesraide_eiropas_planetaras_zinatnes_kongresa_4diena
- http://nra.lv/latvija/223169-tiesraide-vai-cilveki-pec-20-gadiem-dzivos-uz-meness-un-marsa.htm

- LETA photo gallery http://www.leta.lv/photo/album/38BA233B-0107-4FC1-A849-31E756360574?force_lang=lat

The EPSC 5th Day

- http://nra.lv/latvija/223225-tiesraide-epsc-2017-meness-izpete-un-astrobiologija.htm
- http://www.tvnet.lv/tehnologijas/zinatnes/678442-tiesraide_epsc_2017_meness_izpete_un_astrobiologija

Publicity after the EPSC

Press and News portals

- Latvijas Avīze (26.09) http://news.lv/Latvijas_Avize/2017/09/26/zinatnieki-kers-un-urbs-asteroidus
- Diena (13.10) (SestDiena) Interview with Amara Grapa
- https://www.diena.lv/raksts/sestdiena/tuvplana/ievest-baltiju-kosmosa-14182670 (online preview)
- https://goo.gl/JsKWo6 Scanned full SestDiena article http://news.lv/Zurnals_Sestdiena/2017/10/13/ievest-baltiju-kosmosa
- http://www.la.lv/zinatnieki-kers-un-urbs-asteroidus/
- https://www.diena.lv/raksts/viedokli/pasaule/iemest-zemudeni-titana-ezeros-14181258

Another long piece about the EPSC is planned to be published in Zvaigota Debess (Starry Sky) in the winter issue (it is published quarterly).

International Press

Anita Heward at Europlanet gathered the international coverage: not including the 10 Latvian pieces there were there were at least **458 international press mentions**. This includes The Economist, The Sunday Times (UK), The Sun (UK), The Daily Mail, The Hindu, Sciences et Avenir, Focus.it, Spektrum.de, Sueddeutsche Zeitung, Forschung aktuell Deutschlandfunk, ABC.es, CBC Radio, The Japan Times, Thdet ja avaruus, Sky at Night Magazine, Gizmodo, IFLScience, Yahoo! News, Engadget, Popular Mechanics.

(Eight pages follow for international press pieces)

Topic	Date	Site	Title	Link
General EPSC				
	15-09-17	Spektrum	Unser Mann in Riga: European Planetary Science Congress 2017 (I), eine klei	https://scilogs.spek
	18-09-17	Media INAF	[VIDEO] EPSC 2017, congresso dei planetologi europei in Lettonia	https://www.youtub
	19-09-17	Media INAF	[VIDEO] Dieci anni di Dawn: intervista a Maria Cristina De Sanctis	https://www.youtub
	20-09-17	Ilmatieteen laitos	Ilmatieteen laitos vahvasti esillä eurooppalaisessa planeettatutkimuskonferens	http://ilmatieteenlai
	21-09-17	nra.lv	TIEŠRAIDE: Vai cilvēki pēc 20 gadiem dzīvos uz Mēness un Marsa?	http://nra.lv/latvija/2
	21-09-17	Deutschlandfunk F	Das Wandern ist der Planeten Lust	http://ondemand-m
	22-09-17	Izglītības un zinātn	Šadurskis: Kosmosa izpētes nozare raisa jauniešu interesi par eksaktajām un i	http://www.izm.gov.
	22-09-17	EcoMedia	Šadurskis: Kosmosa izpētes nozare raisa jauniešu interesi par eksaktajām un i	https://ecomedia.lv/
	22-09-17	TV Net	Šadurskis: Kosmosa izpētes nozare raisa jauniešu interesi par eksaktajām un i	http://www.tvnet.lv/
	22-09-17	Media INAF	[VIDEO] Science Flash	https://www.youtub
	22-09-17	Sky at Night	European Planetary Science Congress 2017	http://www.skyatnig
	25-09-17	Media INAF	[VIDEO] Nei tunnel scavati dalla lava su Luna e Marte	https://www.youtub
	26-09-17	Spektrum	Unser Mann in Riga: European Planetary Science Congress 2017 (II) Auch die	https://scilogs.spek
Monday 18th September 2017				
Devilish source of dust in atmosphere of Earth and Mars (Jan Raack)				
	18-09-16	UPI	Dust devils contribute large amount of particulate matter to atmospheres of Ear	https://www.upi.con
	18-09-16	EarthSky	Dust devils on Earth and Mars	http://earthsky.org/e
	18-09-16	Science Daily	Devilish source of dust in atmosphere of Earth and Mars	https://www.science
	18-09-16	PhysOrg	Devilish source of dust in atmosphere of Earth and Mars	https://phys.org/nev
	18-09-16	Media INAF	Acchiappa-diavoli di sabbia in azione	http://www.media.in
	18-09-16	Red Planet Report	Dust devils: major source of atmospheric dust on Mars and Earth	http://redplanet.asu
	18-09-16	Videoaggiornati	Acchiappa-diavoli di sabbia in azione	http://www.videoag
	19-09-17	Astronomy	Dust devils toss their dust skyward on Earth and Mars	http://www.astronor
	22-09-17	Sky at Night	The devil's in the dust	http://www.skyatnig
	24-09-17	Astronomy News a	The Dust Devil	http://www.astronor
	25-09-17	Green Area	Les démons de poussière jettent leur poussière vers le ciel sur Terre et Mars	http://greenarea.me

Studies of ‘Crater Capital’ in the Baltics show impactful history (Anna Losiak)

18-09-17	PhysOrg	Studies of 'Crater Capital' in the Baltics Show Impactful History	https://phys.org/nev
18-09-17	Space Daily	Studies of 'Crater Capital' in the Baltics Show Impactful History	http://www.spaceda
18-09-17	Science Daily	Studies of ‘Crater Capital' in the Baltics show impactful history	https://www.science
18-09-17	Long Room	Studies of ‘Crater Capital' in the Baltics show impactful history	https://www.longroo
20-09-17	Crazy Nauka	Polka zbadała „diabelskie” kratery w Estonii – wiadomo już, co rąbnęło w ziemi	https://www.crazyna
22-09-17	Sky at Night Maga	Craters proven to be of extra-terrestrial origin	http://www.skyatnig

2017 Farinella Prize Awarded to Simone Marchi

18-09-17	Tech Explorist	Uncovering the Mysteries of the Solar System: Simone Marchi Awarded 2017 F	https://www.techexp
18-09-17	Astrowatch	Uncovering the Mysteries of the Solar System: Simone Marchi Awarded 2017 F	http://www.astrowat
18-09-17	Colorado Space Ne	2017 Farinella Prize Awarded To SwRI’s Simone Marchi	https://www.colorad

Tuesday 19th September 2017

Press briefing Tuesday

19-Sep-17	Diena.lv	Zinātnieks: Pirmais komerciālais guvums no asteroīdiem būs ūdens ieguve	https://www.diena.lv
20-09-17	LA.lv	Tiešraide: Eiropas Planetārās zinātnes kongresa 2. diena	http://www.la.lv/ties

Size matters in the detection of exoplanet atmospheres (Angelos Tsiaras)

19-09-17	Diena	Zinātnieks: Pirmais komerciālais guvums no asteroīdiem būs ūdens ieguve	https://www.diena.lv
19-09-17	Science Daily	Size matters in the detection of exoplanet atmospheres	https://www.science
19-09-17	UCL	Size matters in the detection of exoplanet atmospheres	http://www.ucl.ac.uk
19-09-17	PhysOrg	Size matters in the detection of exoplanet atmospheres	https://phys.org/nev
19-09-17	Heritage Daily	Size matters in the detection of exoplanet atmospheres	https://www.heritag
19-09-17	NanoWerk	Size matters in the detection of exoplanet atmospheres	https://www.nanowe
20-09-17	International Busin	Presence Of Atmosphere Around Exoplanets Linked To Their Size, Study Finds	http://www.ibtimes.c
21-09-17	Science Mag.cz	Atmosféry exoplanet: klíčová je velikost, ne hmotnost	http://sciencemag.c
22-09-17	Astrobiology Maga	Size matters in the detection of exoplanet atmospheres	https://www.astrobi
22-09-17	Sky at Night	Bigger is better for planetary atmospheres	www.skyatnightmag
22-09-17	Latvijas Sabiedriski	Planetārās zinātnes kongresā Rīgā pulcējas 800 kosmosa pētnieki	http://www.lsm.lv/ra
25-09-17	Star Junkie	Size matters in the detection of exoplanet atmospheres	http://starjunkie.com

26-09-17	Centauri Dreams	A Statistical Look at Exoplanet Atmospheres	https://www.centau
28-09-17	Lab News	Planetary atmosphere conditions discovered	https://www.labnew
28-09-17	Exoplanety	Statistický pohled na atmosféry exoplanet: klíčová je velikost a ne hmotnost	http://www.exoplan
28-09-17	Urania	Rozmiar egzoplanet kluczowy dla wykrywania ich atmosfer	http://www.urania.e

Nanosat fleet proposed for voyage to 300 asteroids (Pekka Janhunen)

19-09-17	Popular Mechanics	Finnish Scientists Push for 50 Nano-Spacecraft to Explore 300 Asteroids	http://www.popularr
19-09-17	Science Daily	Nanosat fleet proposed for voyage to 300 asteroids	https://www.science
19-09-17	New Atlas	The plan to send 50 small spacecraft to tour 300 asteroids	https://newatlas.cor
19-09-17	PhysOrg	Nanosat fleet proposed for voyage to 300 asteroids	https://phys.org/nev
19-09-17	Europa Press	Proponen estudiar 300 asteroides con 50 diminutas naves de ida y vuelta	http://www.europap
19-09-17	Maestroviejo	Proponen estudiar 300 asteroides con 50 diminutas naves de ida y vuelta	https://maestroviejc
20-09-17	The Economist	A new way of propelling spacecraft may open up the asteroid belt	https://www.econon
20-09-17	Daily Mail	Plan to prevent a doomsday asteroid strike revealed: Fleet of 50 tiny satellites (	http://www.dailymai
20-09-17	Endgadget	Scientists want to explore asteroids with a fleet of nanoprobes	https://www.engadg
20-09-17	Universe Today	300 ASTEROIDS TO BE EXPLORED BY A FLEET OF NANOSATELLITES	https://www.univers
20-09-17	Centauri Dreams	A Fleet of Sail-driven Asteroid Probes	https://www.centau
20-09-17	Space Mining New	Nanosat Fleet Proposed For Voyage To 300 Asteroids	http://www.spacemi
20-09-17	Scientias.nl	Wetenschapper wil in drie jaar tijd 300 planetoïden bezoeken	https://www.scientia
20-09-17	Tähdet ja avaruus	Suomalaisen tutkijan ehdotus: Pienluotainten armada voisi tutkia 300 asteroidia	https://www.avaruu
20-09-17	My Broadband	Scientists to explore asteroid belt with nanoprobes	https://mybroadban
20-09-17	Technтium	Các nhà khoa học muốn khám phá các tiểu hành tinh với một đội thăm dò có k	https://technтium.cc
20-09-17	Materials World	The nano fleet	http://materialsworl
20-09-17	Tweakers.net	Onderzoekers willen asteroïdengordel onderzoeken met vloot nanosatellieten	https://tweakers.net
20-09-17	ABC.es	Proponen enviar una flota de nanonaves a 300 asteroides	http://www.abc.es/c
20-09-17	Noticiero Universal	Proponen estudiar 300 asteroides con 50 diminutas naves de ida y vuelta	https://noticierouniv
20-09-17	Mystery Planet	Proponen estudiar 300 asteroides con 50 diminutas naves de ida y vuelta	http://mysteryplane
20-09-17	Portal Astronómico	Proponen estudiar 300 asteroides con 50 diminutas naves de ida y vuelta	https://www.portala
20-09-17	Sina	**欧**洲研究团**队**提出派50**个**小型航天器前往300**颗**小行星的**计**划	http://tech.sina.com

20-09-17	TechNews	微型太空探测军团出发，前往小行星带大规模探勘	http://technews.cn/
20-09-17	3G	去了解威胁地球的小行星人类欲发射50颗微型卫星_手机网易网	https://3g.163.com/
20-09-17	Gooread	歐洲研究團隊提出派50個小型航天器前往300顆小行星的計劃	http://www.gooread
20-09-17	CNBeta	欧洲研究团队提出派50个小型航天器前往300颗小行星的计划	http://www.cnbeta.c
20-09-17	Coluna Tech	Cientistas querem explorar asteroides com uma frota de nanosonda	https://www.colunat
21-09-17	Tech163	去了解威胁地球的小行星 人类欲发射50颗微型卫星	http://tech.163.com
21-09-17	DNA India	50 nano spacecraft proposed to explore 300 asteroids'	http://www.dnaindia
21-09-17	The Space Reporte	Small 'nanofleet' could help researchers explore distant asteroids	https://thespacerep
21-09-17	Astronomy Magazi	One asteroid at a time? Nah.	http://cs.astronomy.
21-09-17	Dispatch Voice	Small 'nanofleet' could help researchers explore distant asteroids	http://dispatchvoice
21-09-17	Actualité Houssenia	Un concept de flotte de satellites miniatures pour visiter 300 astéroïdes	https://actualite.hou
21-09-17	RT	Revelan un plan que podría salvar a la Tierra de catastróficos impactos de aste	https://actualidad.rt
21-09-17	CodigoOculto	Revelan un plan que podría salvar a la Tierra de catastróficos impactos de aste	http://codigooculto.(
21-09-17	EJU!	Revelan un plan que podría salvar a la Tierra de catastróficos impactos de aste	http://eju.tv/2017/09
21-09-17	Infobae	Revelaron el plan europeo para evitar que los meteoritos choquen con la tierra	https://www.infobae
22-09-17	24 horas news	Revelado plano que poderia salvar a Terra do impacto de asteroides	https://www.24hora
22-09-17	Gaceta Mercantl	Un plan podría salvar a la Tierra de catastróficos impactos de asteroides	http://www.gacetam
22-09-17	Portal do Holanda	Revelado plano para salvar a Terra após impacto com asteroide	http://www.portaldo
22-09-17	Portal Atual	Revelado plano para salvar a Terra após impacto com asteroide	http://www.portalatu
22-09-17	Notícias ao Minuto	Revelado plano para salvar a Terra após impacto com asteroide	https://www.noticias
21-09-17	CodigoOculto	Revelan un plan que podría salvar a la Tierra de catastróficos impactos de aste	http://codigooculto.(
21-09-17	El Comercio	Científicos europeos tienen un plan para desviar meteoritos	http://edicionimpres
22-09-17	Sky at Night	Attack of the nano-spaceprobes	www.skyatnightmag
22-09-17	Kompas.com	Terungkap, Inilah Rencana Penyelamatan Bumi dari Serangan Asteroid	http://sains.kompas
22-09-17	International Busine	They revealed the European plan to prevent meteorites from colliding with the (	http://ibnservice.co
22-09-17	Sputnik News	Revelado plano que poderia salvar Terra do impacto catastrófico de asteroides	https://br.sputnikne
22-09-17	Sriwijaya Post	Terungkap, Inilah Rencana Penyelamatan Bumi dari Serangan Asteroid	http://palembang.tri
23-09-17	NotiFresh	Científicos dan a conocer un plan para salvar a la Tierra de posibles impactos (	http://www.notifresh

23-09-17	Xataka Ciencia	Asteroid Touring Nanosat Fleet: visitando 300 asteroides con 50 naves	https://www.xataka
23-09-17	Portal NH1	Revelado plano para salvar a Terra após impacto com asteroide	http://www.portalnh
23-09-17	Yucatan All	Revelan un plan que podría salvar a la Tierra de catastróficos impactos de aste	http://yucatanall.co
24-09-17	Newnet.tw	Nanosat微型太空飛行器3年探測300顆小行星	http://newnet.tw/Ne
24-09-17	Innovation Toronto	Asteroid Touring Nanosat Fleet could visit 300 asteroids in 3 years	https://www.innovat
25-09-17	unboxholics	Ένα στόλος νανο-σκαφών για την εξερεύνηση των αστεροειδών	https://unboxholics.
25-09-17	Garip Dünyanın	Nanosat filosu 300 asteroid gezisi önerdi.	http://garipdunya.co
26-09-17	Good Morning Scie	Nanosatellites on its Way to Explore Solar Asteroids	https://gmsciencein
26-09-17	Ulyces	Cette flotte de mini-satellites pourrait explorer 300 astéroïdes à la fois	https://www.ulyces.
28-09-17	Gizmodo	Swarms Of Satellites That Surf The Solar Wind Could Be The Future Of Astero	https://www.gizmod
29-09-17	World Pro News	"Electric sails" could allow us to reach the farthest recesses of space	http://www.worldpro
29-09-17	Thaiza	นักวิทยาศาสตร์ต้องการสำรวจดาวเคราะห์น้อยทีมีกองยานนาโนโพล	https://technology.th
29-09-17	UPost	Mga Swarm ng mga Satellite na Nagbabasa sa Solar Wind Maaaring Maging K	https://tl.upost.info/
29-09-17	Prisma-Online	Flotă de nanosateliți pentru studiul asteroizilor	http://www.prisma-o
03-10-17	DeathRattleSports.	Small ‘nanofleet’ could help researchers explore distant asteroids	http://deathrattlespo
05-10-17	Inovação Tecnológi	Frota de nanossatélites pode visitar 300 asteroides em 3 anos	http://www.inovacao
05-10-17	Comercial Pyramor	Frota de nanossatélites pode visitar 300 asteroides em 3 anos	http://comercialpyra
06-10-17	Air&Space Magazir	300 Asteroids in 3 Years	https://www.airspac
8-10-17	MTI Technologia	Frota de nanossatélites pode visitar 300 asteroides em 3 anos	http://www.mtitecno
09-10-17	Carácter Urbano	Finlandia propone enviar nanonaves a 300 asteroides	https://caracterurba
15-10-17	La Bottega del Barl	Una flotta di vele elettriche esplorerà la Fascia Principale degli Asteroidi	http://www.labotteg
18-10-17	Space Finland	TE: A new Finnish way of propelling spacecraft may open up the asteroid belt	http://spacefinland.f
19-10-17	Financial Times	Space mining aims to exploit Earth-threatening asteroids	https://www.ft.com/c
20-10-17	21st Century Tech	Nanosats and ESAILs: Novel Ways to Explore Our Solar System	http://www.21stcent
24-10-17	Universe Today	[VIDEO] What is an Electric Sail? Another Exotic Way to Explore the Solar Syst	https://www.youtub
24-10-17	Universe Today	What is an Electric Sail? Another Exotic Way to Explore the Solar System	https://www.univers
24-10-17	Guide to Space	[Podcast] What is an Electric Sail? Another Exotic Way to Explore the Solar Sy	https://player.fm/se
25-10-17	The Science Page	What is an Electric Sail? Another Exotic Way to Explore the Solar System	https://thesciencepa

30-10-17	Johnny BTech	“Electric Sails” Could Allow Us To Reach the Farthest Recesses of Space	https://johnnybtech
30-10-17	Futurism.com	“Electric Sails” Could Allow Us To Reach the Farthest Recesses of Space	https://futurism.com
30-10-17	Atometry	“Electric Sails” Could Allow Us To Reach the Farthest Recesses of Space	http://atometry.com
31-10-17	Elexonic	Sailing through space	http://elexonic.com/

What do we need to know to mine an asteroid? (JL Galache)

19-09-17	Science Daily	What do we need to know to mine an asteroid?	https://www.science
19/09/17	Leonard David's In	Asteroid Mining: White Paper Explores Knowledge Gaps	http://www.leonardo
19/09/17	PhysOrg	What do we need to know to mine an asteroid?	https://phys.org/new
19/09/17	International Busin	Asteroid Mining: What Humans Need To Harvest Space Rocks	http://www.ibtimes.c
20-09-17	Media INAF	Le miniere spaziali del futuro	http://www.media.in
20-09-17	Physics World	Grabbing a slice of the pie in the sky	http://blog.physicsw
20-09-17	Space Mining New	What do we need to know to mine an asteroid?	http://www.spacemi
20-09-17	Seeker	In Order for Asteroid Mining to Become a Reality, We'll Need Better Telescopes	https://www.seeker.
20-09-17	Space Daily	What do we need to know to mine an asteroid?	http://www.spaceda
20-09-17	РИА Новости	Ученые рассказали, что мешает добыче ископаемых на астероидах	https://ria.ru/scienc
20-09-17	ХВИЛЯ	Ученые рассказали, что мешает добыче ископаемых на астероидах	http://hvylya.net/ne
22-09-17	L'Obs	Comment on exploitera un jour les richesses des astéroïdes	http://tempsreel.nou
22-09-17	CBC News	Asteroid mining could support space economies, colonies	http://www.cbc.ca/n
22-09-17	Futurism	Asteroids Need to Be Mapped If We’re Going to Mine Their Resources	https://futurism.com
22-09-17	Press Ocean	Les mines d'astéroïdes pourraient soutenir les économies spatiales, les colonie	http://pressocean.c
24-09-17	Earth Chronicles of	To realize the idea of extracting resources on asteroids, more powerful telescop	https://earth-chroni
25-09-17	Спец новости	Для реализации идеи добычи ресурсов на астероидах нужны более мощн	https://1big.ru/spac
25-09-17	Журнал "Все о Ко	Для реализации идеи добычи ресурсов на астероидах нужны более мощн	https://aboutspacej
25-09-17	Sohu	**去小行星采矿已经万事俱备，就差更给力的望远镜了**…	http://www.sohu.co
25-09-17	**中國新聞網**	**去小行星採礦已經萬事俱備，就差更給力的望遠鏡了**…	https://www.xcnnew
28-09-17	Gizmodo	Swarms Of Satellites That Surf The Solar Wind Could Be The Future Of Astero	https://www.gizmod
28-09-17	UPost	🈀🈀🈀 🈀🈀🈀🈀 🈀🈀 🈀🈀🈀🈀 🈀🈀🈀🈀 🈀🈀🈀🈀 🈀🈀🈀🈀🈀🈀🈀🈀	https://hi.upost.info
05-10-17	NeoCosmos	La Floreciente Industria de la Minería Espacial	http://www.neocosm

24-10-17	DW	Who owns space? A guy called Dennis	http://www.dw.com/
24-10-17	21st Century Tech	How to Mine an Asteroid and Get Filthy Rich Doing It	http://www.21stcent

Thursday 21st September 2017

Solar eruption ‘photobombed’ Mars encounter with Comet Siding Spring

21-09-17	PhysOrg	Solar eruption ‘photobombed’ Mars encounter with Comet Siding Spring	https://phys.org/nev
21-09-17	Science Daily	Solar eruption ‘photobombed’ Mars encounter with Comet Siding Spring	https://www.science
21-09-17	EarthSky	Sun photobombed Mars encounter with comet Siding Spring	http://earthsky.org/s
21-09-17	University of Leices	Solar eruption ‘photobombed’ Mars encounter with Comet Siding Spring	https://www2.le.ac.u
21-09-17	Space.com	Comet's 2014 Mars Flyby Caused Most Intense Meteor Shower Ever Recorded	https://www.space.c
21-09-17	Tähdet ja avaruus	Siding Spring -komeetta aiheutti Marsissa historiallisen meteorimyrskyn	https://www.avaruus
21-09-17	FZN	Astéroïdes : une flotte de satellites miniatures pour mieux les comprendre	http://www.fredzone
21-09-17	High Tech News	50 nano rocket proposed to investigate 300 space rocks'	http://www.hightech
22-09-17	Sky at Night	Martian comet encounter complicated by solar winds	http://www.skyatnig
22-09-17	IFL Science (6.3K S	Mars Meteor Shower Sets Record As Biggest Ever In The Solar System	http://www.iflscienc
22-09-17	Focus	Sonneneruption begleitete dramatischen Kometenbesuch am Mars	http://www.focus.de
22-09-17	Zeit Online	Sonneneruption begleitete dramatischen Kometenbesuch am Mars	http://www.zeit.de/n
22-09-17	Der Standard	Beinahekollision zwischen Mars und einem Kometen von Sonneneruption begl	https://www.derstar
22-09-17	Heise Online	Sonneneruption begleitete aufsehenerregenden Kometen-Besuch am Mars	https://www.heise.d
22-09-17	Bluewin	Sonneneruption begleitete dramatischen Kometenbesuch am Mars	https://www.bluewir
22-09-17	ORF.at	Stürmische Begegnung auf dem Mars	http://science.orf.at
22-09-17	Tagesschau.de	Komet trifft Mars trifft Sonnensturm	https://www.tagesso
22-09-17	Stuttgarter Nachtric	Sonneneruption begleitete dramatischen Kometenbesuch am Mars	http://www.stuttgart
22-09-17	Morgen Post	Sonneneruption begleitete dramatischen Kometenbesuch am Mars	https://www.morger
22-09-17	Westfalische Nachr	Sonneneruption begleitete dramatischen Kometenbesuch am Mars	http://www.wn.de/W
22-09-17	Baden Online	Sonneneruption begleitete dramatischen Kometenbesuch am Mars	https://www.bo.de/n
22-09-17	HNA	Sonneneruption begleitete dramatischen Kometenbesuch am Mars	https://www.hna.de/
22-09-17	EXOSS	O rasante de 2014 do cometa Siding Spring em Marte causou a maior chuva d	http://press.exoss.c
22-09-17	Media INAF	Eruzione solare “fotobomba” la cometa	http://www.media.in

22-09-17	Berliner-Kurier	Komet streift Mars Kosmischer Beinahe-Treffer löst größten Meteorsturm aus –	https://www.berliner
22-09-17	General Anzeiger	Sonneneruption begleitete dramatischen Kometenbesuch am Mars	http://www.general-
22-09-17	Mr Knowledge	Planetenforschung Komet trifft Mars trifft Sonnensturm	https://www.youtube
23-09-17	Everything Is Electi	Mars Express Electric Delivery System	http://www.everythin
23-09-17	BPH	L'ERUZIONE SOLARE, MARTE E LA COMETA	http://www.blueplan
25-09-17	Physics-astronomy	Astronomers Have Revealed The Biggest Meteor Shower Ever Recorded In Th	http://www.physics-
25-09-17	PC Tablet	Sun photobombs Mars Before encountering with Siding Spring Comet	https://www.pc-table
25-09-17	The Tecake India	Sun photobombs Mars Before encountering with Siding Spring Comet	https://tecake.in/ne
28-09-17	Gießener Allgemeir	Sonneneruption stört Kometenbesuch	http://www.giessene

Friday 22nd September 2017

'Crash Scene Investigation' reveals resting place of SMART-1 impact (Bernard Foing)

22-09-17	Sky at Night	European lunar lander location revealed	http://www.skyatnig
22-09-17	Popular Astronomi	LRO har sett den svenska månsonden SMART-1:s kraschplats	http://www.popular
22-09-17	ESA Facebook	Lost but now found.	https://www.faceboo
22-09-17	Leonard David's In	Lunar Lost, Now Found: Crash Site of European Moon Probe	https://www.leonard
22-09-17	PhysOrg	Crash Scene Investigation' Reveals Resting Place of SMART-1 on Moon	https://phys.org/nev
22-09-17	Astronomy Magazi	New observations reveal a lunar orbiter's final resting place	http://www.astronor
22-09-17	Moon Daily	Crash Scene Investigation' Reveals Resting Place of SMART-1 on Moon	http://www.moonda
23-09-17	Tähdet ja avaruus	Eurooppalaisluotaimen törmäyspaikka löytyi Kuusta	https://www.avaruu
25-09-17	Daily Mail	Crash site of Europe's first lunar satellite is found 11 YEARS after it plunged on	http://www.dailymai
25-09-17	Media INAF	Luna: trovato il sito dello schianto di Smart-1	http://www.media.in
25-09-17	Europa Press	Localizado dónde impactó hace 11 años la primera misión lunar europea	http://www.europap
25-09-17	Infobae	Misterio develado: qué pasó con la nave espacial que chocó contra la Luna	https://www.infobae
25-09-17	iefimerida.gr	Εντοπίστηκε μετά από 11 χρόνια στην επιφάνεια της Σελήνης το διαστημόπλοιο	http://www.iefimerid
25-09-17	Observatori Astron	Descubren el lugar de impacto de SMART-1 sobre la Luna	https://observatori.u
25-09-17	cienradios	Encontraron una nave espacial perdida que impactó en la luna	https://ar.cienradios
25-09-17	El Intransigente.co	Descubrieron dónde "descansa" un pionero lunar	http://www.elintrans
25-09-17	Caraota Digital	Descubren nave espacial perdida que se estrelló en la luna	http://www.caraotad

25-09-17	Explota	Hallan una nave espacial perdida que impactó en la Luna	https://www.esplota
25-09-17	CET US News	Scientists find the crash site of the Smart-1 spacecraft	http://www.cetusne
25-09-17	Mogaz News	Scientists find crash site of Smart-1 spacecraft	https://en.mogazne
26-09-17	Mirror	Moon crash mystery SOLVED after 11 years as scientists discover resting plac	http://www.mirror.c
26-09-17	IFL Science	Final Resting Place Of ESA's First Lunar Orbiter Found On The Moon	http://www.iflscienc
26-09-17	Periodista Digital	Descubren una nave espacial que impactó en la Luna	http://www.periodist
26-09-17	Indian Express	Crash site of Europe’s first lunar mission found	http://indianexpress
26-09-17	ABS.es	Cinco naves espaciales perdidas encontradas en la Luna	http://www.abc.es/c
26-09-17	A1.ro	Agenția Spațială Europeană: ”Am găsit mașina de spălat prăbușită pe Lună, în	http://a1.ro/news/ex
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26-09-17	Hirado.hu	Megtalálták az első európai Hold-szonda nyughelyét	https://www.hirado.
27-09-27	Space.com	Grave of Europe's 1st Moon Orbiter Finally Found	https://www.space.c
27-09-27	MSN	[VIDEO] Astronomers find 11-year-old crash site of lunar orbiter	https://www.msn.co
27-09-27	New Atlas	NASA lunar orbiter spots site of crashed craft on the Moon	https://newatlas.cor
27-09-27	ORIGO	Megtalálták az elveszett űrszonda nyughelyét	http://www.origo.hu
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27-09-27	24.hu	Megtalálták a 11 éve lezuhant holdszonda maradványait	http://24.hu/tudoma
28-09-17	Scientas.nl	Laatste rustplaats van de eerste Europese maanorbiter ontdekt	https://www.scientia
28-09-17	La Gran Época	¿Encontraron la nave espacial perdida que impactó en la Luna hace 11 años?	https://www.lagrane
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10-10-17	Věda & Vesmír	Astronomové objevili místo, kde odpočívá první evropská družice obíhající Měs	http://veda.instory.c
11-10-17	Western News	Researcher crashes into Moon mystery solution	https://news.wester
15-10-17	AstroWatch	Crash Scene Investigation: Resting Place of ESA’s First Lunar Mission Found	http://www.astrowat
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18-10-17	SyFy.com	Here is the final resting place of SMART-1 on the Moon	http://www.syfy.com
18-10-17	Рамблер	На Луне найдено место падения первого европейского спутника Луны Да	https://news.rambl

20-10-17	Sociadade Cientific	Investigação do local da colisão: encontrado lugar de descanso da primeira mi	http://socientifica.co

Sunday 24th September 2017

Lava tubes: the hidden sites for future human habitats on the Moon and Mars (Riccardo Pozzobon/Leonardo Carrer)

24/09/17	The Sunday Times	Giant tunnels in moon could give us a home	https://www.thetime
24/09/17	Leonard David's In	Underground Caves on Moon, Mars: Protected Habitats for Explorers	http://www.leonardo
25-09-17	The Sun	Pit Pads on Mars	Print edition
25-09-17	Daily Mail	Humans could soon live INSIDE the moon and Mars in giant underground tunn	http://www.dailymai
25-09-17	Inverse	Mars Colonists Could Live in Lava Tubes Beneath the Surface	https://www.inverse
25-09-17	Science Daily	Lava tubes: Hidden sites for future human habitats on the Moon and Mars	https://www.science
25-09-17	International Busin	Hidden caves on Mars and the Moon are ideal places for human settlements	http://www.ibtimes.c
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25-09-17	Hindustan Times	Underground caves created by lava can be where humans build houses on Mo	http://www.hindusta
25-09-17	Scientas	Worden lavatunnels op Mars en de maan een tweede thuis voor de mensheid?	https://www.scientia
25-09-17	Media INAF	[VIDEO] Nei tunnel scavati dalla lava su Luna e Marte	https://www.youtub
25-09-17	Media INAF	Enormi grotte di lava su Luna e Marte	http://www.media.in
25-09-17	Science of Cycles	Lava Tubes: Hidden Sites For Future Human Habitats On The Moon And Mars	http://scienceofcycl
25-09-17	InFuture.ru	Мы будем искать тоннели на Марсе и Луне	http://www.infuture.
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26-09-17	Colorado Space Ne	Lava Tubes: The Hidden Sites For Future Human Habitats On The Moon And M	https://www.colorac
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26-09-17	HT InfoHub	Hidden lava tubes on Moon, Mars can serve as human habitats	http://htinfohub.com
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26-09-17	ZME Science	Lava tubes on Moon and Mars might be habitats for future colonies	https://www.zmesci
26-09-17	EuropaPress	Predicen enormes tubos de lava para colonias seguras en la Luna y Marte	http://www.europap
26-09-17	ABC.es	Tubos canarios de lava: sitios ocultos donde se prueba la vida humana como e	http://www.abc.es/e
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26-09-17	Gazeta Express	Ja si do të jetojnë njerëzit në Hënë dhe Mars	http://www.gazetae
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26-09-17	WebTekno	Mars'a Gidecekler, 250 Metrelik Bu Dev Lav Tüplerine Yerleştirilebilirler	http://www.webtekn
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26-09-17	Faydasal	Moon: Hidden lava tubes on Moon, Mars can serve as human habitats	http://science.fayda
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27-09-17	La Opinión	Paredes de lava para vivir en Marte	http://www.laopinion
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27-09-17	Mystery Planet	Los primeros colonos en la Luna y Marte podrían vivir bajo la superficie	http://mysteryplane
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27-09-17	Geval News	In the Moon and Mars, the ideal areas for human settlement were discovered	https://www.youtub
27-09-17	Gears of Biz	Underground towns on the Moon and Mars: Future human habitats could be hi	http://gearsofbiz.co
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27-09-17	Tsargrad.tv	Ученые нашли на Луне и Марсе огромные тоннели, пригодные для жизни	https://tsargrad.tv/n
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02-10-17	Digital Trends	Lava tubes on Mars could provide shelter for streets and towns, study says	https://www.digitaltr

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02-10-17	News 4 C	Mars And Moon Tunnels Could Represent Our Future Home	https://news4c.com
02-10-17	Tech Switch	Mars colonists might dwell in and drive via lava tubes, new analysis suggests	https://techswitch.c
02-10-17	NewsTrack	This is how cities will be established on Moon and Mars	http://english.newst
03-10-17	NewsDog	This is how cities will be established on Moon and Mars	http://newsdog.toda
03-10-17	Lidada	Tubos de lava: escondrijos para los hábitats humanos del futuro en la Luna y M	https://sedaliada.wo
03-10-17	The Tecake	Lava Tubes could be the new breakthrough for Mars Human habitation	https://tecake.in/ne
03-10-17	Deccan Herald	Lava tubes - Possible human habitats	http://www.deccanh
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03-10-17	Physlink	Lava Tubes: Human Habitats on the Moon and Mars?	http://www.physlink
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13-10-17	Thoi Bao Today	Thông tin gây sốt về ống dung nham trên sao Hỏa, Mặt trăng	http://thoibao.today
15-10-17	Newsflash	Now Human Can live on Moon and Mars	https://aajkikhabre.l
19-10-17	Popular Mechanics	Scientists Scout Lunar Caverns As Possible Sites for a Moon Base	http://www.popularm
19-10-17	News Week	Colonizing the Moon: Scientists Discover Lava Tubes That Could House an Un	http://www.newswe
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19-10-17	Express Newsline	New Discovery Takes Us One Step Closer To Living On The Moon	http://expressnewsl
19-10-17	TVN	Scientists Scout Lunar Caverns As Possible Sites for a Moon Base	http://trueviralnews.
19-10-17	Вечерняя Москва	Ученые нашли идеальное место для жизни людей на Луне	http://www.vm.ru/ne
19-10-17	Mail on Sunday	Is this the perfect spot for a lunar colony? Japan's space agency uncovers a 3(	http://www.mailonsu
19-10-17	MSN	Moon Lava Tubes Could House Entire Cities	https://www.msn.co
20-10-17	Just My Deal	Lava Tubes On the Moon Could Shelter Humans	https://justmydeal.c
20-10-17	The Knight & Drum	Moon Walk	http://parzivalshors
24-10-17	Spaceflight Insider	Underground towns on the Moon and Mars: Future human habitats could be hi	http://www.spacefli
26-10-17	KP.ua	На Марсе и Луне можно жить в пещерах	https://kp.ua/life/59
26-10-17	KP.ru	Пещерными жителями станут люди, прибывшие на Луну и Марс	https://www.kp.ru/d
26-10-17	Naked Science.ru	Колонистам на Луне и Марсе предложили жить в лавовых трубках	https://naked-scien

Thursday 21 September

AFP: Des scientifiques militent pour une mission européenne vers un astéroïde

20-09-17	AFP	「アルマゲドン」小惑星計画からの離脱、欧州に再考要請 科学会議	http://www.afpbb.co
20-09-17	PhysOrg	Europe urged to reconsider pullout from 'Armageddon' asteroid mission	https://phys.org/nev
20-09-17	The Citizen	Europe urged to reconsider pullout from 'Armageddon' asteroid mission	https://citizen.co.za
20-09-17	Space Daily	Europe urged to reconsider pullout from 'Armageddon' asteroid mission	http://www.spaceda
20-09-17	France 24	Europe urged to reconsider pullout from 'Armageddon' asteroid mission	http://www.france24
21-09-17	Daily Mail	Europe's decision to withdraw from doomsday asteroid mission is branded a 'ca	http://www.dailymai
21-09-17	The Sun	STEEP IMPACT Decision to close down doomsday asteroids mission could lea	https://www.thesun.
21-09-17	Daily Star	Asteroid WARNING: Earth faces 'catastrophe' without £184million 'Armageddo	https://www.dailysta
21-09-17	South China Morni	Europe urged to reconsider pullout from ‘Armageddon’ asteroid mission	http://www.scmp.co
21-09-17	Deccan Chronicle	Europe urged to reconsider pullout from ‘Armageddon’ asteroid mission	http://www.deccanc
21-09-17	MSN	「アルマゲドン」小惑星計画からの離脱、欧州に再考要請 科学会議	https://www.msn.co
21-09-17	RFI	Europe urged to reconsider pullout from 'Armageddon' asteroid mission	http://en.rfi.fr/wire/2
21-09-17	GMA News Online	Europe urged to reconsider pullout from ‘Armageddon’ asteroid mission	http://www.gmanetv
21-09-17	Criticism News	Europe’s Step Back from AIDA puts Earth in Danger: Scientists	https://criticismnew
21-09-17	Agenţia Naţională	Oamenii de ştiinţă îi cer ESA să revină asupra retragerii sale dintr-o misiune de	https://www.agerpre
21-09-17	Le Journal de Mont	Des scientifiques militent pour une mission européenne vers un astéroïde	http://www.journald
21-09-17	7sur7.be	La Terre doit se préparer au scénario d'une collision avec un astéroïde	http://www.7sur7.be
21-09-17	Oueste France	Une mission d’étude vers un astéroïde annulée, les scientifiques s’alarment	https://www.ouest-f
21-09-17	La Croix	Des scientifiques militent pour une mission européenne vers un astéroïde	https://www.la-croix
21-09-17	RTL Info	Des scientifiques militent pour une mission européenne vers un astéroïde	http://www.rtl.be/inf
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21-09-17	ZIUA News	Oamenii de ştiinţa ii cer ESA sa revina asupra retragerii sale dintr-o misiune de	http://www.ziuanew
21-09-17	VOA	Des scientifiques militent pour une mission européenne vers un astéroïde	https://www.voaafri
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25-09-17	The Hindu	Armageddon' asteroid mission: Europe must reconsider	http://www.thehindu
25-09-17	everyeye.it	GLI SCIENZIATI CHIEDONO ALL'EUROPA DI RICONSIDERARE LA MISSION	https://tech.everyey
26-09-17	Aux Frontières de l	Des scientifiques militent pour une mission européenne vers un astéroïde	http://www.auxfront
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Friday 22 September 2017

AFP: Fly me to the Moon: For some, lunar village takes shape

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22-09-17	Daily Mail	Europe's lunar village will see humans born on the MOON 'in a few decades'	http://www.dailymai
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22-09-17	ca123.ca	移民月球？23年內或有100人去住	http://ca123.ca/BigI
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22-09-17	L'Express	"Un millier de personnes" sur la Lune d'ici 2050, l'ESA en rêve	http://www.lexpress
22-09-17	New Report	Moon village: Στόχος για 100 ανθρώπους στη Σελήνη το 2040	https://newreport.gr

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23-09-17	Science Alert	We Just Got a Glimpse at What Life on The Moon Could Look Like	https://www.science
23-09-17	The Hindu	Fly me to the moon: Lunar settlement possible by 2030	http://www.thehindu
23-09-17	Steemit	European Space Agency (ESA) Plans Its Moon Village	https://steemit.com/
23-09-17	DNA	Un village sur la lune d'ici 2040 ?	http://www.dna.fr/ac
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23-09-17	I4U News	HERE'S WHAT IT WOULD BE LIKE TO LIVE ON THE MOON	https://www.i4u.con
23-09-17	Agenția Națională	O sută de oameni ar putea trăi pe Lună până în 2040, afirmă un expert de la E	https://www.agerpre
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24-09-17	ImmortalNews	Humans Could Be Living On The Moon In 10 Years	https://www.immort
24-10-17	ScienceNet	**专家预测人类很快就能到月球上生活**	http://blog.sciencen
25-09-17	National Geograph	Naučnici tvrde: Do 2040. godine, na Mesecu bi moglo da živi više od 100 ljudi	http://www.national
25-09-17	Mirror	Over a hundred people could be living in a lunar village on the MOON by 2040	http://www.mirror.co
25-09-17	NTD.TV	Scientists Reveal Plans to Have Thousands of People Living on the Moon	http://www.ntd.tv/20
25-09-17	The Epoch Times	Scientists Reveal Plans to Have Thousands of People Living on the Moon	https://www.theepo
25-09-17	Buzz.ie	A hundred people will be living on the moon by 2040	https://www.buzz.ie
25-09-17	VTM	Porodnice a žádné státní vlajky. I tak by mohl vypadat život na Měsíci Více na:	https://vtm.zive.cz/b

25-09-17	3ders.org	ESA targets 3D printed Moon Village by 2030, expects 'lunar children' shortly a	https://www.3ders.c
25-09-17	Silicon Republic	Moon Village' could be a thriving colony of 1,000 by 2050	https://www.siliconr
25-09-17	Longshot Report	LIVING ON THE MOON IS NOT A DREAM ANYMORE AND SOON WILL BE A	https://longshortrep
25-09-17	Galactic Sandbox	No place like home	http://galacticsandb
25-09-17	Ecns.cn	Fly me to the Moon: Lunar village takes shape	http://www.ecns.cn/
25-09-17	3DRuck	3D-gedrucktes Dorf am Mond soll laut ESA bis 2030 Realität werden	https://3druck.com/
25-09-17	NDT	**科学家预测**：2040**年人类将入住月球**	http://ca.ntdtv.com/
25-09-17	Thai Physics Teach	ความเป็นไปได้ในการสร้างชุมชนบนดวงจันทร์	https://www.thaiphy
26-09-17	People.cn	**科学家预测**：至2040**年或会有**100**人入住月球**	http://scitech.people
26-09-17	PC Tablet	Scientists expect that by 2050, minimum 1000 people would be living on the M	https://www.pc-tabl
26-09-17	Money Control	Space agencies working on a possibility of having a human colony on moon	http://www.moneyc
26-09-17	Galileo TV	2040 KÖNNTEN BEREITS 100 MENSCHEN AUF DEM MOND LEBEN	https://www.galileo.
26-09-17	Kompass.com	Tak Lama Lagi, Desa Bulan Bukan Sekadar Impian	http://sains.kompas
26-09-17	ETToday	**歐科學家：「**3D**列印月球村」**2040**年前將有**100**人入住**	https://www.ettoday
26-09-17	Principia Scientific	ESA: One Hundred Moon Residents By 2040	https://principia-scie
27-09-17	Sciences et Avenir	Un millier de colons sur la Lune en 2050 ?	https://www.science
27-09-17	tagesschau.de	Gemeinsame Mondträume	https://www.tagesso
27-09-17	Detek	Moon Village, Tak Lama Lagi Bulan Sebagai Rumah Manusia	http://detik.in/featur
27-09-17	The Space Reporte	European scientists seek to build moon colony by 2030	https://thespacerep
27-09-17	Christian Post	Moon Village Plan to be a Reality by 2050	https://www.christia
27-09-17	Adeleide Now	Expert explains importance of a 'lunar outpost' for intergalactic travel at Adelaid	http://www.adelaide
28-09-17	Hani.co.kr	[가가] 2040가 '100가 가 가가' 가가가가	http://plug.hani.co.k
28-09-17	SciencePost	Y aura-t-il bientôt un village sur la Lune ?	http://sciencepost.fr
28-09-17	RTL Futur	Un village humain sur la Lune, base arrière de la conquête de Mars	http://www.rtl.fr/cult
28-09-17	Il Selcolo XIX	Colonia permanente sulla Luna, almeno cento persone nel 2040	http://www.ilsecolox
02-10-17	L'Adn	Fly me to the Moon : la Lune redevient hype	http://www.ladn.eu/
02-10-17	FredZone	LA LUNE ABRITERA PEUT-ÊTRE UN VILLAGE HUMAIN EN 2040	http://www.fredzone
04-10-17	Istanbul Ticaret	'Ay köyü' 2050'ye kadar gerçek olacak	https://www.itohabe

	04-10-17	Usbek & Rica	Le premier village extraterrestre sera-t-il lunaire ?	https://usbeketrica.(
	06-10-17	EIR	Moon Village Could Supersede Space Station for Space Travel, Mining Helium	https://www.larouch
	07-10-17	Việt Khám Phá	ESA: Hàng trăm người có thể sống trên Làng Mặt trăng trước năm 2040	http://www.vietkhan
	08-10-17	Intelligent Aerospa(	Moon Village Could Supersede Space Station for Space Travel, Mining Helium	http://www.intelliger
	19/10/17	Life Magazine	Japan's Selene lunar orbiter finds uncovers a moon cave	http://lifemagazineu
	27/10/17	Daily Mail	Solar-powered machine could let astronauts make their own water and oxygen	http://www.dailymai
	27/10/17	Latest News Netwc	Astronauts could make water and oxygen from moon rocks	http://latestnewsnet
	31-10-17	Trikalaidees	Moon village: Το 2040 θα είναι έτοιμο το χωριό«αποικιστών» στο φεγγάρι	http://www.trikalaide
	31-10-17	Sohu.com	**这台机器能用月球土壤造氧，人类移居月球还远吗？**	http://www.sohu.cor
Other coverage				
	27-09-17	Tartu Observatory	SpaceTEM student received the best poster award from European Planetary S	https://www.to.ee/e
	30-09-17	Estonian Space Of	SpaceTEM student received the best poster award from European Planetary S	https://www.eas.ee/
	06-10-17	The Ithican	Q&A: Professor travels to Latvia to speak on asteroid science	https://theithacan.o

Notes on the EPSC 2017 Riga Press Support

The press support of the EPSC 2017 Riga was boosted by the tremendous press support of LMT/Deep White and the streaming offered by LMT.

Some details on Amara Grapa's press and streaming support. After Dr. Grapa met LMT vice-president, Ingmārs Pūķis, on the press bus to Cesis for the first rocket launch in April 2017, Dr. Grapa had two meetings at LMT to develop the EPSC 2017 Riga streaming requirements in more detail. Following those presentations, LMT directed her to meet their Press Group and consultant company: Deep White for more EPSC 2017 press support. Dr. Grapa met Deep White initially to give a full introduction to the EPSC and then briefly over email, phone and off-and-on during the Congress. Dr. Grapa corrected Deep White's / LMT's first press piece that summarized Latvian space science and suggested several Baltic journalists to add to their collection.

Dr. Grapa also met the LMT camera crew at the Radisson Blu to see and discuss the Radisson Blu floor layout, at a time when Europlanet/LMT and LMT was at a decision point about what could be streamed exactly.

For connecting the local press to Europlanet's Press Office, Dr. Grapa communicated regularly with Europlanet Press Office (especially Anita Heward) through the days, just prior and during the Congress, especially regarding the selections of the talks to stream and for streaming permissions for the LMT recordings.

The EPSC Press Office, themselves:

- Issued media invitations to promote the meeting to the international and astronomy specialist media and supported Deep White in promoting the upcoming EPSC 2017 meeting to Latvian media.
- Issued press releases on scientific topics presented at the meeting. These were sent to the Europlanet Media List, forwarded to the AAS Media List, posted on the AlphaGalileo media service and published on the Europlanet website.
- Organised and live-streamed two press conferences on a range of scientific topics presented at the meeting
- Collaborated with the EPSC 2017 LOC and sponsors, LMT, to gain permissions to stream more than 100 of the scientific talks during the meeting.
- Managed contacts with the international media and liaised with Deep White on local PR activities.
- Staffed the Press Office during the meeting and responded to requests from media representatives.
- Organised social media activities and published images and videos of the Congress

Aleksandra Čaka iela, 96-31, Rīga, Latvia, LV-1011 Phone: +371 288 53907 (mobile) Skype: amaralynn
Email: amara@balticsinspace.eu LinkedIn: https://www.linkedin.com/in/amaragraps

- The Press Office also monitored media activities, collating coverage of EPSC 2017 in the media.

As the Europlanet Press is part of the Europlanet Grant Agreement, I do not include the Europlanet's Press Office to these costs below.

Public Communication Costs

LMT Streaming Costs (my guestimates): for their 4-person camera team and time to stream one session at a time from 9:00 to 19:00 for 5 days, attaching labels and info to the streamed information and archiving **= total 15,000 Eur**

Amara Grapa Selecting / Streaming Costs: For selecting / Streaming Talks: Meetings and discussions with LMT and Europlanet Press Office and with LMT Camera Crew (600 Eur), Selecting Talks from the Abstracts (600 Eur), Initial work for gaining permissions from Authors (200 Eur). Dr. Grapa was paid 500 Eur by LMT for her work on these parts. **= 1400 – 500 = total 900 Eur**

Deep White Press Costs (my guestimates, correct me if you know more): for their ten journalists' travel and accommodations to Riga to follow the EPSC and write stories **= total 10,000 Eur**

Amara Grapa Press Contributions: Press invitations and discussions (600 Eur), Meetings with Deep White, correcting their large Latvian Space press release, multi-part pointers to local journalists and to Latvian space scientists for interviews (800 Eur) **= total 1400 Eur**

Total Part 6 Cost: €27,300

EPSC 2017 Riga LOC Financials

Sum of Totals
Total Opening and Key Speakers Cost: €12,980
Total Space Facilities Booklet Cost: €14,530
Total Baltic Space Exhibits Cost: €43,600
Total Solar System for Kids and more Cost: €22,620
Total Art-Science-Culture Links Cost: €13,150
Total Public Science Communication Cost: €27,300

EPSC 2017 LOC Sum Total: €137,180

Baltic entities In-kind contributions for the six parts: € 112,650

A. Grapa costs for the six parts: € 24,530
Donations to A. Grapa for her EPSC LOC work: € 7500
Net A. Grapa costs: € 17,030

The remaining parts of the Dr. Grapa LOC effort: the LOC Meetings, the Riga Transportation Guide, the Riga Restaurant Guide, the Crowd-funding (time) costs, this proposal development (time) costs are not described here. Those costs are about € 15,000. See full spreadsheet at the balticsinspace.eu web site.

EPSC 2017 Riga LOC Financial Summary:

- Dr. Grapa engaged the International and Baltic businesses, government, institutes and individuals for in-kind sponsorship of the Local Organizing of the EPSC 2017 Riga for **€ 112,650.**

- Dr. Grapa's EPSC 2017 local organizing costs of at least **€ 17,030** (and up to € 32,000, see full spreadsheet) was not financially covered by any entity. This will be discussed further in the Lessons for Improvement, below.

Some EPSC 2017 Riga Feedback

On the Planetary Scientists in Riga:
FB comment from Ingmārs Pūķis, LMT Vice President:
"It was great to have all this planetary brainpower coming to Riga:). Thank you Amara!"

On the Zinoo Space Exhibits:

FB comment from Adele Stanford, Kings College, Riga, teacher, on the Zinoo Exhibits: "Amara Graps the children from Kings College loved it. They have been telling me all about it. Thanks so much x"

FB comment from JL Galache, UK/ES/USA planetary scientist and asteroid miner, on the Zinoo Exhibits: " I hope all the grownups attending the conference took a few minutes to go enjoy the Zinoo exhibit. The Mars rover, for one, was very cool and enlightening."

On the Congress:

EstLat-2020 SPACETEM Intern, Anni Kasikov:
"As a bachelor's student it was difficult to understand many of the presentations, because I don't have enough knowledge about the subjects. But the best experience for me was the Tuesday's poster session, where I could walk around and ask people about their posters. So I asked them "Could you explain your

research to a bachelor's student?" And I learned so much during those few hours! I learned about magnetic fields of Uranus and Saturn, about the geology of Mercury, about the processes on a comet's surface and how the solar wind affects Earth's atmosphere. By the end of the night I felt like my head was about to explode from all the cool things I heard! And the rest of the night me and the other LU students were discussing what we learned that day. This was the most awesome experience for me at the EPSC and it gave me a lot of motivation to do well at my studies, so that in the future I could also be one of those planetary scientists presenting a research."

EstLat-2020 SPACTEM Mentor: Endija Briede:
"Great conference, especially high level keynote speakers. The ability to meet and network with great people was excellent. I was happy to see captivated trainees and hear positive feedback from them."

On the black, handmade t-shirts worn by the SpaceTEM team.
Twitter comment by USA planetary scientist @asrivkin :
"A group of Baltic engineering interns are wearing this shirt tonight at #EPSC2017. I post this for the gang of engineers back at @JHUAPL..."
pic.twitter.com/sBg1mERjmdhttps://t.co/sBg1mERjmdpic.twitter.com/sBg1mERjmd
Twitter comment by USA planetary scientist and asteroid miner @drphitill :
"Seen at #EPSC2017" https://t.co/5Eb1nYw50n

FB comment by Andris Slavinskis, LV/EE space engineer on the EPSC 2017 Riga scientific sessions:
"Interplanetary Nanosatellites, CubeSats/SmallSats session at #EPSC2017 makes me very happy. When proposing an engineering session for a science conference, only I could dream about such excellent talks, and I definitely did not expect the Latvian Minister of Finance giving a talk there and an article in The Economist coming out the session. Thank you everybody who contributed!"

FB comment by Glenn Orton, JPL (USA) planetary scientist:
"I will attest that, even with the tremendously challenging travel from the western US, the Congress as a whole was exciting and immensely worth while. I'd do it again in a heartbeat, including the challenges we have just to approve the required travel."

FB Comment by Rosaly Lopes, JPL (USA) planetary scientist:
"It's been a great meeting! I hope for more meetings in Riga!"

FB Comment by Philip Metzger, Univ Central Florida, planetary scientist and asteroid miner: "EPSC 2017 was great. Kudos to Amara Graps and the other organizers. Everything went smoothly (from my perspective!): the talks were great, lots of cool science, the conversations were great, lots of coffee and snacks, Amazing social event. Beautiful city. Everything one could want in a planetary science conference. Thank you Amara!"

Twitter pic of Opening EPSC sketch of Riga from USA planetary scientist & artist: @jtuttlekeane
https://twitter.com/jtuttlekeane/status/909655231205699584

Twitter comment/pic from UK planetary scientist: @leighfletcher
"My first time in the Baltics, and fantastic to see a former Latvian president addressing our planetary science community in Riga! #EPSC2017"
pic.twitter.com/6wh6EIWrIJ

Twitter comment from UK/ES/USA planetary scientist and asteroid miner: @JLGalache
"Madam President Vaira Viķe-Freiberga gave a beautiful talk about the significance of the Sun in Latvian folklore and life. #EPSC2017"

Twitter comment from Nature Editor @LucaPlanets
"Should we mention that the two (important) Baltic politicians that talked at #EPSC2017 opening ceremony were women? Let's mention it..."

Twitter comment from German planetary PhD student @lets_boldly_go
"Pleased to see so many women speakers in the first hours of #EPSC2017 . So so important! @europlanetmedia"

Twitter Comment from Finnish space scientist @samooja
"One great thing about #EPSC2017 #European planetary #Science conference are amateur astronomy sessions. (this year in #Riga #Latvia) #space"

Twitter comment from French planetary PhD student @Ines_Blgcm
"#EPSC2017 is also the 1st conf I've heard of with amateur astronomers sessions as well as science & industry ! Diversity is so appreciated!"

Twitter comment/pic from UK planetary scientist: @leighfletcher
"One thing #EPSC2017 does really well is the inclusion of amateur observers in the sessions, particularly to support missions like Juno." pic.twitter.com/sjBZAHVwrO

Twitter comment from USA planetary scientist @asrivkin
"Great to see the turnout at the Diversity Breakfast at #EPSC2017!"

Twitter comment from a French planetary scientist: @davidwdubois
"Thanks to @europlanetmedia for organizing such a wonderful meeting this week, with amazing talks all throughout! #EPSC2017 @balticsinspace"

Twitter comment from Spanish planetary scientist: @ajd_geosci
"A huge thank you to the #EPSC2017 organisers for a great congress!"

Twitter comment/pics from USA planetary scientist: @asrivkin
"We're just about to start the road trip leg. Thanks to @amaragraps and @anitaheward (et al!) for doing an amazing job with #EPSC2017 !"
"Farewell #EPSC2017! Thanks for the science! We're off to Lithuania with the brave @asrivkin behind the wheel!" https://t.co/rFWWaYrViu

Twitter comment/pic from French planetary PhD student @Ines_Blgcm
"At Riga Airport getting ready to go back to Paris! Thank you 4 a wonderful #EPSC2017! Great science, awesome people! See you next year :)" https://t.co/Bth7hMjhnP

FB Comment from JL Galache, UK/ES/USA planetary scientist and asteroid miner, on the EPSC 2017 Riga generally:
"I spent the week asking people how they thought the organisation and conference went, and everyone was positive. The only complaint I received was "the beer at the poster sessions isn't good." To put this complaint into perspective: There was beer and wine during the poster sessions, and it was free; as much as you could drink! Personally I don't see any reason to complain □

Items that are always important to me:
- Free flowing caffeine: ✔
- Smooth glitchless projection and audio equipment: ✔
- Ample rooms for talks and socialising: ✔
- Easy to navigate floor plan: ✔

One issue I saw was a session on the first day that many people ended up sitting on the floor for (I tweeted a photo). Amara heard about this and the next day that room had some 50 extra chairs in it.

So bravo Amara for a hugely successful conference, with the highest attendance since the London EPSC (2013?). And let's face it, to "lose" the attendance battle to London says a lot about how well Riga did. "

I come back home scientifically refreshed (if physically exhausted) and with wonderful memories of Riga and the conference. Thank you, Amara!!!

On the EPSC 2017 Riga Social Event:

Twitter comments by Dr. Margaret Harris, Industry Editor at Physics World @drmlharris
"Turns out that planetary scientists are really into orbits, even on the dance floor! Traditional Latvian dance at the #EPSC2017 social" pic.twitter.com/WxMdFov0GP
"This is genuinely one of the most adorable conference social activities I've ever seen, and I go to lots of coferences. Well done, #EPSC2017"

Twitter pic by Welsh planetary science PhD student: @caryshuntly
"Cheers #EPSC2017! Tonight is all about trying local food and drinks!" https://t.co/OndUyBSJ6d

Twitter comment by USA planetary scientist and asteroid miner: @DrPhiltill
"Great conference social at #epsc2017" https://twitter.com/drmlharris/status/910566095542775808 …

On Riga:

(FB comment on the first days of Riga rain)
Scot Rafin, USA Mars scientist
"I really enjoyed the mix of sun and rain. Coming from a mostly dry and crunchy land, the rain can be refreshing."

Twitter Pics of Riga during EPSC from Nature Astronomy Editor
https://twitter.com/LucaPlanets/status/909400673825038336

Twitter Pics of Riga during EPSC from UK planetary scientist: @nick_attree
https://twitter.com/nick_attree/status/909474733883822080

Twitter pics of a Riga Old Town street from a UK planetary scientist: @physicsJ
"This photo was all about the cat. #EPSC2017" https://t.co/0zobJrV6wM

Twitter pics of Riga by a Welsh PhD planetary science student @caryshuntly
"Very cool sightseeing lunch break at #EPSC2017. Riga is a beautiful city. #scienceinthepark"
https://t.co/18nWoB342v

Twitter pic from USA planetary scientist: @schmemela
"Enjoying the view from my #epsc2017 hotel room" pic.twitter.com/PBGsattTCq

Twitter comments from UK/ES/USA planetary scientist and asteroid miner: @JLGalache
"I do appreciate the directness of this [Caffeine] establishment's name. No beating around the coffee bush here!"
in response:
Twitter comments from USA planetary scientist: @schmemela
"Latvia, I love you. #epsc2017"

Twitter comment/pic from USA planetary scientist: @schmemela
"Not entirely certain what I'm eating, but pizza in Latvia does not disappoint! #epsc2017"
https://t.co/ngNm5bsGXF

Twitter comment/pic from USA planetary scientist and artist: @jtuttlekeane
"Taking a break from drawing planets to relax and enjoy Riga #EPSC2017" pic.twitter.com/qaZx15POSI

Twitter pic from USA planetary scientist: @schmemela
"#EPSC2017 coffee break comes with adorable merengues! I've never had one before. Tastes like crunchy cotton candy." https://t.co/ww2oz0nf7V

Twitter pic of group in Riga Esplanade park by UK planetary scientist: @leighfletcher
"Farewell Riga #EPSC2017 and thanks for a great week - love from the Leicester planeteers @PhysicsUoL #RSPP" https://t.co/vJMHSQOxH9

Twitter and Instagram pic in front of a Riga old town restaurant from a UK planetary scientist @davidaw222
"And it's over. Had a great time in Riga at #epsc2017. I had a good talk on NASA Dawn mission…" https://t.co/plm7zJEe5b https://www.instagram.com/p/BZWdJ3cHKcT/

Twitter comment/pic from French planetary PhD student: @planeto57
"In #Riga witches are not allowed in bakeries #EPSC2017" https://t.co/HrmHloNB5h

Twitter comment/pic from from a UK planetary scientist: @physicsJ
"Riga was fun. #EPSC2017 was productive. On way to DC now" https://t.co/wN92UANGs7

Twitter comment/pic from USA planetary scientist and artist: @jtuttlekeane
"Goodbye Riga! Great city, fantastic #EPSC2017! I'll be back sketching at #DPS49!" https://t.co/GxjEDeeiCw
Phil Metzger with alot of riga photos

Twitter comment/pic from USA planetary scientist and asteroid miner: @DrPhiltill
"#EPSC2017 was great! FInal day in Latvia before returning to the US. I'm heading to the Baltic coast now to see some sand." pic.twitter.com/ljH6Tv2dNf https://t.co/ljH6Tv2dNf

EPSC 2017 Riga LOC Lessons for Improvement

I consider the EPSC 2017 LOC a success for delivering what I told the EPSC Board in Fall 2015 that I would deliver. I established many useful new contacts. I learned new skills; found good reasons to found a new non-profit, and there are 'hooks' that can be utilized for continuing to build space work in the Baltic Sea Region. The financial support of the EPSC 2017 LOC has room for considerable improvement, however, which seemed to have stemmed from a number of misunderstandings by Europlanet and the EPSC Board. Here is a discussion.

Notes for the Europlanet and EPSC Managers and Board

The following are points that I found myself repeating to the EPSC / Europlanet Board managers, while explaining the environment from which I was supporting the EPSC.

- Half of Europe, the Eastern half, is mostly soft money scientists. (I am one of those.)
- University affiliations do not mean a stable income. (I collect affiliations so that I have more funders to write proposals to.)
- Eastern Europe consists of tiny countries, in both size and population. (It was reasonable for the EPSC Board to ask for a four-country Event. It was *not* reasonable for one planetary scientist to support it with 0 resources from EPSC and Europlanet)
- A four-country EPSC LOC needs more time than a one-country EPSC LOC. (Remember my first EPSC LOC Contact List in Summer 2016? It had 130 entries and needed one week of my time to develop it.)
- Eastern European countries do not collaborate as well as Western Europe thinks because their native languages are not understandable by each other. (Nevertheless, English –is- used.)
- Some Eastern European countries have no planetary scientists. (Look East)
- Many Eastern European space scientists have no experience of what is an EPSC. (Such as the three Baltic countries.)
- Repeating in another way: I was the only scientist in the three Baltic countries who knew what was the EPSC and what its value would be for space workers in this region.
- The typical EPSC professional registration fee is the same as the full monthly salaries of some Eastern Europe countries. (The attention I spent on the EPSC Registration fee issue was for a good reason.)

I (A. Grapa) developed a Local Organising Committee for the EPSC 2017 Riga that anchored around the Baltic Space Facilities, in order to have the highest probability of good material in the Space Exhibits and in the Space Facilities booklet. That is, the people from whom I wanted to contribute to these activities were those who would have the greatest to gain from them.

The LOC was initially given 0 Eur. The reason is that the EPSC LOC was not listed for funds in the European Commission Europlanet grant agreement. Instead, the EPSC 2017 Riga EC funds went to the scientific abstract and registration and hotel organizing (company: Copernicus Meetings).

By the end of the Congress, the number people who were involved for all aspects of the Local Organizing activities included 195 Baltic people (see the full spreadsheet of costs and personnel). I ran the majority of the Local Organizing tasks for the EPSC 2017 Riga, spending 209 fulltime days on this project since March 2016, when I learned that Riga won the EPSC 2017 competition.

I didn't ask the rest of the LOC members to donate their free time beyond immediate 'Space Booklet' and 'Space Exhibit 'roles, because, as soft money scientists like me, with no official paid 'EPSC project', I felt that their family sacrifices would be too great and for something that they had no previous knowledge about.

However, the financial burden for my EPSC LOC work caused me to lose my only credit card, my only child barely saw me for 10 months, and the financial recovery impacts my ability for professional and personal travel for the next year-two.

If Europlanet and the EPSC Board are serious about the 'Widening' intention of European projects, then here are my suggestions for their future Eastern European Meetings.

IF Europlanet and the EPSC Board want to give a major international meeting with 0 funds to an Eastern European scientist, and the receiver understands fully what they are getting into (I didn't), then you need to give them a minimum of two years in advance, and better three years. Why?

Fund-raising.

1. Government proposals need at least one year to develop, submit, and then receive, if they win (and they might not win).
2. The local industry needs at least one year in advance to put the meeting in their yearly budget.
3. The scientist needs some months to develop (or hire) sponsorship skills, -- pricing assets, surveying the business environment, gaining access to company CEOs, all to learn 'no' and then to repeat it for the next company and its CEO.
4. The scientist needs some months to learn crowd-funding skills –storytelling, video making, and appealing graphics-- for additional funds.

I learned the above skills and ran two crowd-funding campaigns for 53 donors for my LOC work. However, the time I needed to learn those new skills was about the same as the amount of funds I gained in the Crowd-funding. So therefore, the time that the EPSC Board gave (1.5 years) for

Fundraising –and- for the LOC Chair to learn those new skills, was too little time to implement the fund-raising properly.

My personal lessons-learned is that I started with the wrong funders in my too-short time of 1.5 years. The government funders were too paperwork-intensive, two restrictive in who they could pay, too time-consuming and too few funds to support my work. If I had started with the local businesses (learning those skills, above), for sponsorship, then my fund-raising would have been easier.

IF Europlanet / EPSC Board wants to give a major international meeting with suitable funds (20-40 KEur, then it is a truly 'Widening' effort) to an Eastern European scientist, then you need to give them a minimum of 1.5 years Why?

1. They need to develop the educational projects to involve the Youth in the Event (you are paying for the scientist's time to develop the projects).

2. They need to develop the communication and press contacts. (you are paying for the scientist's time to develop the projects). The LOC might even be able to provide you streaming, if they have enough time.

3. They need time to develop the mechanisms for their Keynote Speakers who must travel to the Event (see note on tiny countries above)

4. They will use the funds for their telecommunication software (Skype doesn't work for large groups of people) and for their Cloud Storage (i.e. Dropbox or Equivalent for storing the large numbers of presentations.

5. Choose a host city in the country's capital city. This gives the organizers access to Embassies who have speakers programs who can pay for some speakers' travel/accommodations. An EPSC in a Capital City also gives the LOC access to the European Commission Representation office for some financial Communication support.

I hope that this Lessons for Improvement discussion proves useful. If any management members want to utilize the new skills that I have developed in this project, I am willing to be a teacher in this area, but not for free.

Baltics in Space Contact:

Amara Grapa, Executive Director
amara@balticsinspace.eu
Cell: +371 / 28853907