



EPSC 2017

European Planetary Science Congress 2017

17–22 September 2017

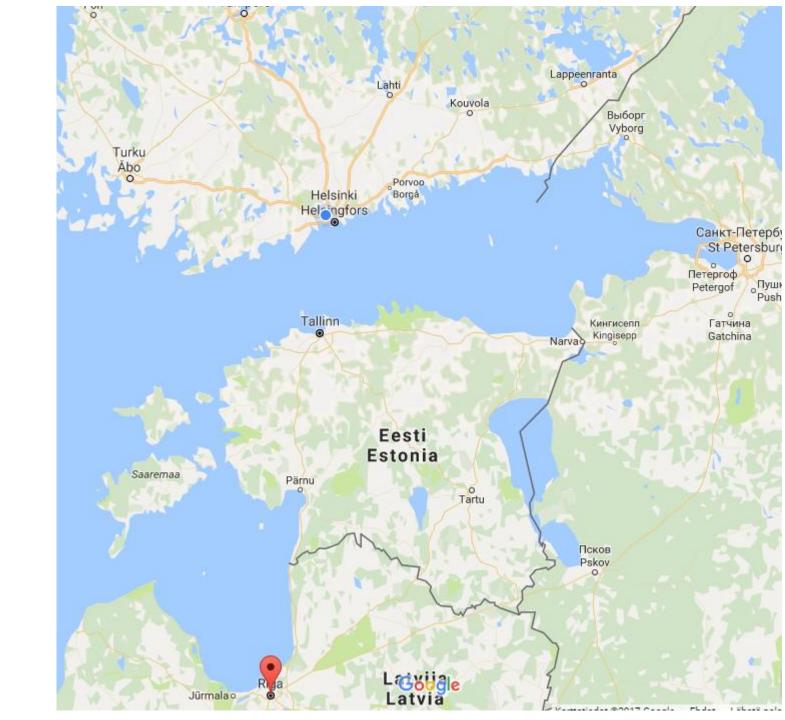
Radisson Blu Hotel Latvija | Riga | Latvia





Paikka ja aika

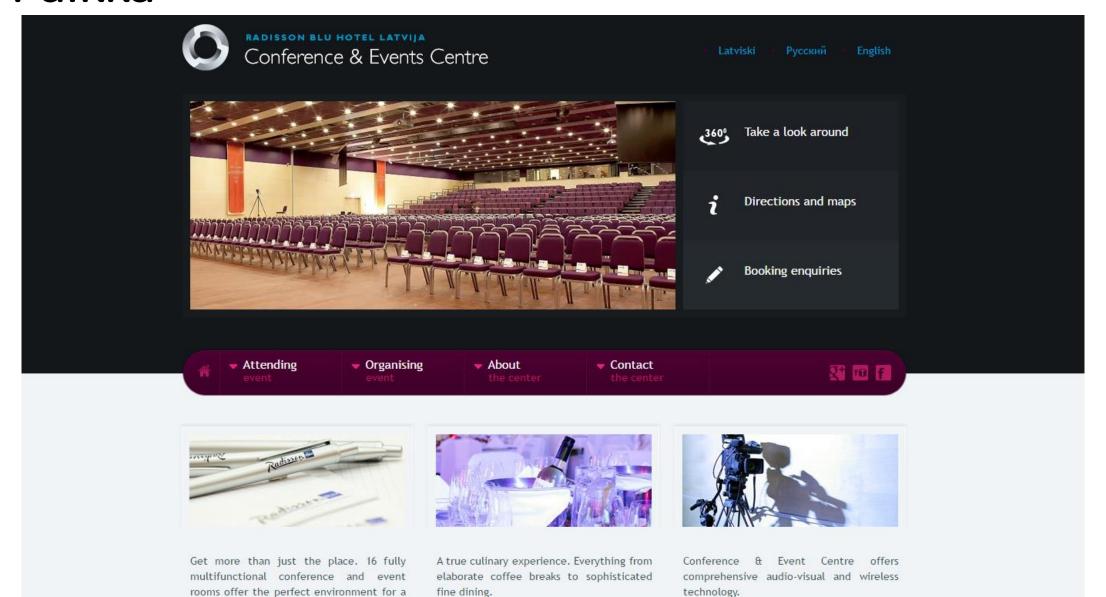
- Riika, Latvia
- Syyskuun 17.-22. päivä
- Koko viikon ajan avaruusasiaa
- Suorat lennot
 - Helsinki
 - Tampere (alkaa vuonna 2017)

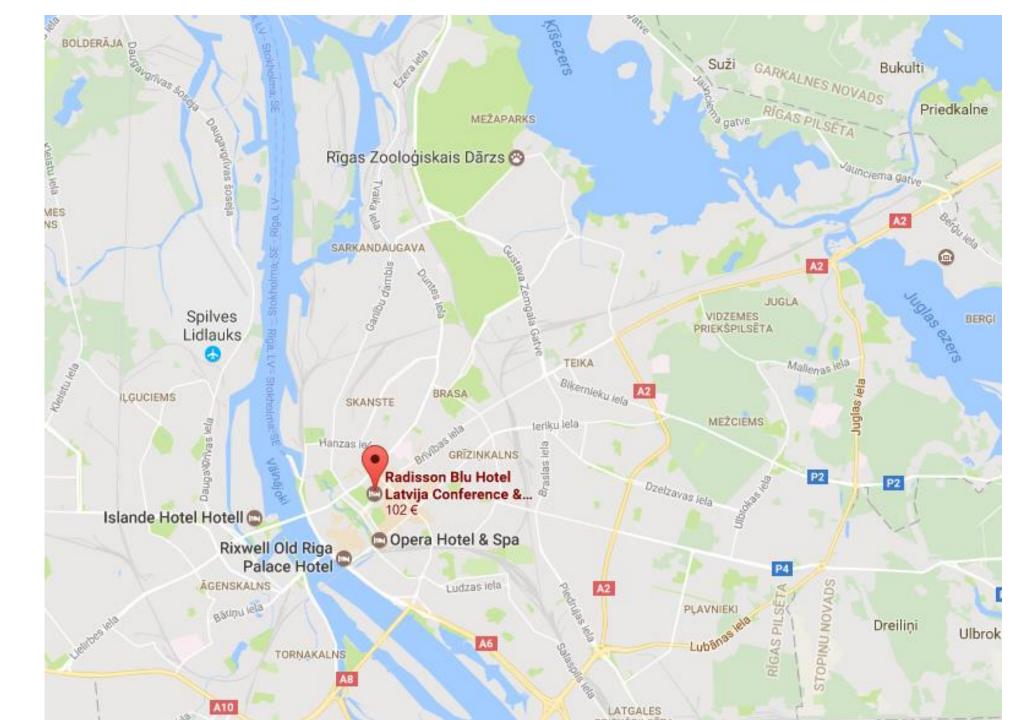


- Radisson Blu Hotel Latvija
- Riika, Latvia
- Konferenssihotelli keskellä Riikaa
- Koko hotelli konferenssihuoneineen käytössä
- Majoitus myös samassa paikassa, jos haluaa
 - Majoitusta tarjolla suhteellisen edullisesti myös muualla

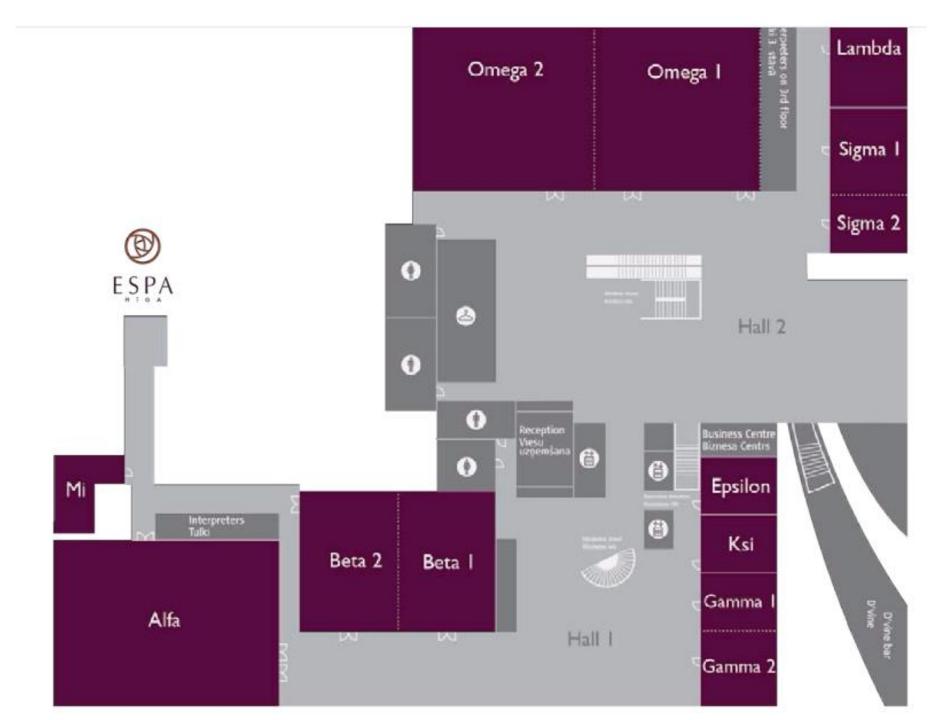


http://www.rigaconference.com/en















Sessiot

- TP Terrestrial Planets
- LSE Lunar Science and Exploration
- OPS Outer Planet Systems
- MG Magnetospheres and Space Physics
- MT Missions, Techniques and Industry
- EX Exoplanets and Origins
- AB Astrobiology
- SB Small Bodies
- LF Laboratory and Field Investigations
- OEP Outreach, Education, and Policy
- AM Amateur Astronomy

Sessiot

Sessiot ovat:

- Posterisessioita
 - Posteri/juliste joka esittelee toimintaa
 - Yksi ilta, noin 3 tuntia, jolloin posterilla esitellään posterin sisältöä
- Puhesessioita
 - Puhe
 - Noin 10-15 min sisältäen kysymykset



AM – Amateur Astronomy

AM1

Amateur collaborations in small bodies, terrestrial, giant and exo planets professional studies

Convener: M. Delcroix | Co-conveners: C. Pellier, R. Hueso, A. A. Christou, P. A. Yanamandra-Fisher, H. Haukka

Oral programme / Wed, 20 Sep, 14:00–15:30 / Room Mars Poster programme / Attendance Thu, 21 Sep, 17:45–19:15 / Poster area

AM2

Juno Ground-Based Support from Amateurs

Convener: M. Delcroix | Co-conveners: J. Rogers, C. Pellier, R. Hueso, G. S. Orton, L.N. Fletcher, P. A. Yanamandra-Fisher

Oral programme / Wed, 20 Sep, 16:00–17:30 / Room Mars

OEP – Outreach, Education and Policy

OEP1

Policy & Sociocultural Aspects of Planetary exploration: NA1-Networking of European planetary science communities and Citizen Science with Big Data

Oral programme / Thu, 21 Sep, 14:00–15:30 / Room Mars
Poster programme / Attendance Thu, 21 Sep, 17:45–19:15 / Poster area

OEP2

Education, capacity building and training with Planetary Research

Oral programme / Thu, 21 Sep, 09:00–12:30 / Room Mars
Poster programme / Attendance Thu, 21 Sep, 17:45–19:15 / Poster area

OEP3

Planetary science and exploration outreach through Arts

Oral programme / Thu, 21 Sep, 16:00–17:30 / Room Mars Poster programme / Attendance Thu, 21 Sep, 17:45–19:15 / Poster area

OEP4

International lunar decade - towards a self-sustaining space economy

Oral programme / Thu, 21 Sep, 11:00–12:30 / Room Uranus Poster programme / Attendance Thu, 21 Sep, 17:45–19:15 / Poster area

Sessiot

Esimerkki posterista

- Organized network for supporting the amateur—scientist co-operation in Finland; V. Mäkelä, H. Haukka, A. Oksanen and V-P. Hentunen; European Planetary Science Congress 2014; Vol. 9, EPSC2014-168, 2014 [PDF]; Poster
- **Pro-Amateur Observatories as a Significant Resource for Professional Astronomers Taurus Hill Observatory**; <u>H. Haukka</u>, V-P. Hentunen, M. Nissinen, T. Salmi, H. Aartolahti, J. Juutilainen and H. Vilokki; European Planetary Science Congress 2013; Vol. 8, EPSC2013-443, 2013 [PDF]; Poster
- Amateur astronomy by Taurus Hill Observatory; <u>T. Salmi</u>, V-P. Hentunen; European Week of Astronomy and Space Science (EWASS) 2013, Turku, Finland; Oral talk
- Transit Observations in Taurus Hill Observatory; H. Haukka, V-P. Hentunen, M. Nissinen, T. Salmi, H. Aartolahti, J. Juutilainen and H. Vilokki; European Planetary Science Congress 2012; Vol. 7 EPSC2012-169 2012 [PDF] [Kuvia tapahtumasta]; Poster
- **Ground Based Support for Exoplanet Space Missions**, Oral presentation; H. Haukka, V-P. Hentunen, M. Nissinen, <u>T. Salmi</u>, H. Aartolahti, J. Juutilainen and H. Vilokki; EPSC-DPS Joint Meeting 2011; Vol. 6, EPSC-DPS2011-683, 2011 [PDF, tiivistelmä] [Kuvia tapahtumasta]; Oral talk
- Small telescope stellar object light curve measurements; H. Haukka, V-P. Hentunen, M. Nissinen, T. Salmi and H. Aartolahti; European Planetary Science Congress 2010; Vol. 5, EPSC2010-170, 2010 [PDF]; Poster
- Small Telescope Exoplanet Observations in Taurus Hill Observatory; V.-P. Hentunen, M. Nissinen, <u>H. Haukka</u> and H. Aartolahti; European Planetary Science Congress 2009; Vol. 4, EPSC2009-119, 2009 [PDF]; Poster

Organized network for supporting the amateur-scientist co-operation in Finland

V. Mäkelä(1), H. Haukka(1,2), A. Oksanen(1,3) and V.-P. Hentunen(2)

((1) Ursa Astronomical Association, Finland (veikko.makela@ursa.fi // Tel. + 358-50-5668023), ((2) Taurus Hill Observa tory, Finland, ((3)/Astronomical/Association Jyväskylän Sirius, Finland

PROAM network is a working group of Ursa Astronomical Association [1] for supporting Finnish amateur astronomers participating to co-operation projects between professional and amateur astronomers. The network relays the information on projects, maintains professional contacts and arranges training on technical skills for research work.

Background

Finnish Observatory Network [2] was originally founded for co-operation between the observatories of Finnish amateur astronomical associations and private amateurs who were interested in professional-amateur astronomy. Its goals were to help amateurs and associations in communication between professional and amateur astronomers and to share know-how in construction and equipping of observatories.

Results and Main Interest

During the last ten years the teams and members of the network (figure 1) have participated in several professional research projects, eg.

- photometry of exoplanet transits [3] (figure 4)
- · asteroid search and monitoring
- · photometry of asteroids [7] [9]
- mutual phenomena of Galilean satellites [4] (figure 5)
- comet monitoring campaigns [5]
- · supernova search and monitoring [8]
- photometry of variable stars [6]
- photometry of GRB optical afterglows [10]

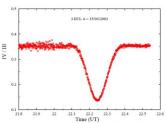


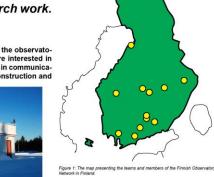
Figure 5: PHEMU03 [4] Campaign observations in Nyrola Observatory with 16-inch Meade LX200 and SBIG STBXE CCD camera by A. Oksaren: Ganymede eclipsing Callisto on 15

References

- http://www.ursa.fi/torniverkko/english.html
- http://var2.astro.cz/ETD/index.php
- The PHEMU03 catalogue of observations of the mutual phenomena

physics Volume 493 Issue 3, 2009 pp 1171-1182

- http://stsp.astro.umd.edu/
- Asteroids' physical models from combined dense and sparse photom caling of the YORP effect by the observed obliquity distribution Hanus, et. al., Accepted for publication in A&A, January 15, 2013 A low-energy core-collapse supernova without a hydrogen envelope Valenti, et. al., Nature 459, 674-677 (4 June 2009), Nature Publishing
- Helsinki, Faculty of Science, Department of Astronomy, Doctors
- 10] Afterglow Upper Limits for Four Short-Duration, Hard Spectrum Gam-



Goals of the PROAM Network

The main goals of Finnish PROAM network are:

projects, campaigns and observational requests where amateur contribution is needed

2. Be a contacting channel between professional astronomers and Finnish amateur astronomers

3. Help and train the network members in research

The network have own web pages [2] and use e-mail and other electronical channels for com-

Recently the scope of the network is focused

more on private amateurs interested in scientific

work in professional-amateur projects, and the

working group is renamed as Finnish PROAM

network. The interest to scientific work among

Finnish amateur astronomers is rising. There are

plenty of high quality instruments and observa-

tories in Finland. There is obvious need for information and support on research work.

skills, eg. photometry and data processing

munication

Present Network

1. Relay information on professional research

Figure 2: Hankasalmi observatory on winter. Photo: Arto Oksanen.



Figure 3: Taurus Hill Observatory on summer. Photo: Jari Juutilaine

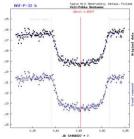


Figure 4: HAT-P-32 b observed at THO 22.8.2013 by V.-P. Hentune

Acknowledgements

Authors wants to give acknowledgements to all individual members and observatories who have involved in Finnish PROAM network. Also we want to give thanks to the scientists and institutes who have supported the network.



Pro-Amateur Observatories as a Significant Resource for Professional Astronomers=Taurus Hill Observatory

H. Haukka, V-P. Hentunen, M. Nissinen, T. Salmi, H. Aartolahti, J. Juutilainen and H. Vilokki Taurus Hill Observatory, Finland (harri.haukka@kassiopeia.net / Tel: +358-443406510)

http:/www.taurushill.net

Taurus Hill Observatory (THO), observatory code A95, is an amateur observatory located in Varkaus, Finland. The observatory is maintained by the local astronomical association Warkauden Kassiopeia.

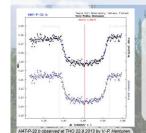
THO research team has observed and measured various stellar objects and phenomena. Observatory has mainly focused on asteroid [1] and exoplanet light curve measurements, observing the gamma rays burst, supernova discoveries and monitoring [2]. We also do long term monitoring projects [3]. THO research team has presented its research work on previous EPSC meetings [4], [5], [6] and [7] and got very supportive reactions from the European planetary science community.

OJ287 Observation Campaign 2006 - 2008

OJ287 was observed at THO from December 2006 to October 2008 about 50 times. The measurements were made normally once a week according to the prevailing weather conditions. The target was usually imaged with the exposures of 300 or 600 seconds through the photometric R-filter and on each observation night 3 - 6 times. In photometric measurements THO reserarch team used the finding chart and the brightness list of the check stars which are listed on the project pages of OJ287: www.astro.utu.fi/OJ287MMVI/. The observation results were submitted to Dr. Kari Nilsson from Tuorla Observatory. We usually achieved brightness precision of 0.01 magnitudes. Our results were in harmony with the measurements done by others around the world. Also, THO's measurements of OJ287 measurements were used in the article that was published in Nature, April 2008 [2].



years from Earth. There has been a variation in the brightness of the OJ287 in 12 years cycle. Photo: V.-P. Hentunen and M. Missinen.



Transit Observations of Exoplanets

Exoplanets have been one of the specialties of the THO research team in Finland. The team has made for now many years transit and light curve measurements about the exoplanets. To this date the team has measured over 40 different exoplanet light curves, some of them several times. The first THO measurements have been added to AXA-database is maintained by Bruce L. Gary and now observatory is mainly using EDT maintained by Variable Star and Exoplanet of Czech Astronomical Society. Some of the measurements have been send to the Pulkovo Observatory (Russia) for further analysis.

THO site is optimal place in Finland to observe and measure transits and light curves during the winter due the lack of the light pollution. This gives the observatory possibility to have long measurement periods during these dark winter months

Supernovae Discoveries and Monitoring

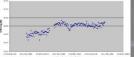
THO has been the most active supernovae observer in Finland. The observatory research team has discovered eigth new supernovae from the northern part of the sky. Observatory has also monitored few interesting supernovae. For example, the measurements of the supernova SN 2008ha were used in the Nature article [3] published in June 2009.



Valenti A Pastorello E Cappellaro S Benetti P A Mazzali J Man A A massive binary black-hole system in OJ 287 and a test of general

Hentunen, M. Nissinen, T. Salmi, H. Aartolahti, J. Juutilainen and

Transit Observations in Taurus Hill Observatory, H. Haukka, V-P. Hennen M Nissinen T Salmi H Aartolahti J Juutilainen and H Vilok



Asteroid Light Curve Measurements

The Taurus Hill Observatory research team has measured dozens of light curves of different asteroids at THO since 2006. Because the rotation period of an asteroid is often 5 - 10 hours this usually means that the measurements take all night. Because of the quite fast relative motion of asteroids the exposure time must Asteroid 22 Kalliope light curve measured at THO 19/20.4.2013. be short, about one minute. However, this is usual-

ly enough when using photometric R-filter since the brightness of the objects are between 11 and 13 magnitudes. Some of our measurements were submitted to Dr. Johanna Torppa who analyzed them. Her doctoral thesis "Light curve inversion for asteroid spins and shapes" [1], was accepted in December 2007 and THO asteroid measurements were part of the thesis.

THO has also made asteroid observation for the Pulkovo Observatory (Russia). One of them is 22 Kalliope that was observed at THO April 2013. Pulkovo Observatory is interested in multiply asteroids. These asteroids have unique "zik-zak" -shape of light curve that is also clearly visible in THO measurements.

More information about the Taurus Hill Observatory research

If You would like to get more information about the research work made at the THO, please visit our website in the address http://www.taurushill.net. We recommend that You also visit the Transitsearch (http://www.transitsearch.org/) and AXA (http://brucegary.net/AXA/x. htm) websites. We are grateful to the Finnish Meteorological Institute who sponsored this





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Aims & scope

The intention of the European Planetary Science Congress 2017 is to cover a broad area of science topics related to planetary science and planetary missions. The programme of the congress will contain oral and poster sessions, and it will emphasize workshops and panel discussions in order to have a strong interaction between the participants.

The Scientific Organizing Committee of the EPSC2017 invites all planetary scientists to participate in the congress, submit contributions to the topical sessions and share their research with colleagues and friends. We look forward to welcoming you in Riga, Latvia.

Latest information

Abstract submission deadline: 3 May 2017, 13:00 CEST

http://www.epsc2017.eu/

Deadlines & milestones

Date	Task	Group
14 December 2016–31 January 2017	Call-for-sessions: public can suggest sessions in the various Programme Groups	Community
01-08 February 2017	Session Programme Finalisation based on the Call-for-Sessions suggestions	SOC
15 February 2017	Call-for-abstracts, start of the abstract submission	Community
03 May 2017, 13:00 CEST	Abstract submission deadline	Community
04-17 May 2017	Convener Part 1 + 2 (SOI + II) Convener Part 1: acceptance, rejection, transfer of abstracts to other sessions (no oral/poster selection at this stage), additional upload of abstracts by conveners are possible Convener Part 2: Session Tagging, i.e. conveners communicate wishes and requirements regarding room size, time blocks, no-overlap requests, to SOC	Conveners
18-23 May 2017	PCI (SOC Part 1): evaluation of rejected and unassigned contributions, finalization of sessions that have not completed SOI task	SOC
24 May 2017	Letter of acceptance (information to authors if their abstract is accepted and in which session, no information about oral or poster decision)	Copernicus
25-31 May 2017	PCII (SOC Part 2): assigning of time blocks, rooms, days and exact session times to each session on the basis of convener requests and consistency for the programme	SOC
01-14 June 2017	Convener Part 3 (SOIII): oral/ poster selection (according to assigned timeblocks), ordering of presentations	Conveners
15-21 June 2017	PCIII (SOC Part 3): finalization of programme	SOC
22 June 2017	Letter of schedule (information to authors with precise information regarding session, time and length of presentation, etc.) Upload of conference programme on website	Copernicus
13 July 2017	Deadline for information to be included in programme book (welcome text, adverts, etc.)	SOC
15 August 2017	Deadline for letter of invitation requests	Community
31 August 2017	Deadline for daily programme	Conveners
17-22 September 2017	European Planetary Science Congress 2017	Community

EPSC2017 - Session overview

Day	Timeblock	Time	Jupiter room	Saturn room	Uranus room	Neptune room	Venus room	Mars room	Mercury room	Press conference room	
Sunday		15:00-19:00							EPN council meeting (CE5)		
S		16:00-18:00	Ice breaker reception (CE1)								
	1	09:00-10:30	Opening (CE2)								
<u>~</u>	2	11:00-12:30	<u>TP8</u>	MG1	EX3	TP6	LF1	<u>SB7</u>			
Monday	Lunch	12:45-13:45							SMW1.4		
₫	3	14:00-15:30		<u>SB5</u>	EX3	<u>TP7</u>	LF4	MT8			
-	4	16:00-17:30	<u>TP8</u>								
	5	17:45-19:15			EX4		LF2	MG3			
_	2	09:00-10:30 11:00-12:30	SB3	TP8	EX4	TP1	MT3/SB13	MT1			
Tuesday	Lunch	12:45-13:45					MT4				
š	3	14:00-15:30		IP8	OPS3	TP2	MG2	MT1	SMW1.2		
Ž	4	16:00-17:30	SB3					MT13			
	5	17:45-19:15			Poste	r session group 1		MILLS			
_	1	09:00-10:30	TP4		OPS3	OPS4/TP8.2	MT15				
Ę	2	11:00-12:30		<u>SB3</u>				SB10			
Wednesday	Lunch	12:45-13:45							SMW1.1		
ŧ	3	14:00-15:30	IP4	SB3	MT12 OPS1	OPS4/TP8.2	<u>SB6</u>	AM1	MT5		
ě	4	16:00-17:30		MT12				AM2	SMW1.5		
^		18:30	Social event (CE3)								
	1	09:00-10:30	OPS1	SB4	502	TP5/OPS5/SB14	TP8.1	OEP2			
	2	11:00-12:30		204	OEP4	MT2	1130.4	2012			
Thursday	Lunch	12:45-13:45	Europlanet General Assembly (CF4)								
F	3	14:00-15:30		CR4	1053	MT2	CDO	OEP1	CMM1 2	CMW1 6	
	4	16:00-17:30	OPS1	EX1	<u>LSE3</u>	SMW1.7	<u>SB8</u>	OEP3	SMW1.3	SMW1.6	
	5	17:45-19:15	Poster session group 2								
Friday	1	09:00-10:30	<u>LSE1</u>	OPS2	<u>SB2</u>	<u>SB1</u>	EX2/MT16	MT6			
	2	11:00-12:30						1112			
	Lunch	12:45-13:45									
	3	14:00-15:30	LSF1	OPS2	SB2	SB12	AB1				
	4	16:00-17:30	LSE2								

Poster Session Group 1	TP1, T2, TP6, TP7, TP8, OPS3, MG1, MG2, MG3, MT1, MT3/SB13, MT4, MT8, MT13, EX3, EX4, SB3, SB5, SB7, LF1, LF2, LF4
(Tuesday, 17:45-19:15)	
Poster Session Group 2	TP4, TP5/OPS5/SB14, TP8.1, LSE1, LSE2, LSE3, OPS1, OPS2, OPS4/TP8.2, MT2, MT5, MT6, MT12, MT15, EX1, EX2/MT16, AB1, SB1,
(Tuesday, 17:45-19:15)	SB2, SB4, SB6, SB8, SB9, SB10, SB12, OEP1, OEP2, OEP3, OEP4, AM1, AM2, LP1

Sessioiden aikataulu

Attendance Time: Thursday, 21 Sep, 17:45–19:15

Poster area

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EPSC2017-127

PVOL2 (The Planetary Virtual Observatory and Laboratory): An improved database of amateur observations of Solar system planets

R. Hueso, J. Juaristi, J. Legarreta, A. Sánchez-Lavega, S. Erard, B. Cecconi, and P. Le Sidaner

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EPSC2017-71

Taurus Hill Observatory Scientific Observations for Pulkova Observatory during the 2016-2017 Season

V.-P. Hentunen, H. Haukka, E. Heikkinen, T. Salmi, and J. Juutilainen

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Add programme schedule to your personal programme

EPSC2017-520

Amateur observations of exoplanets in Finland: History and recent activities

V. Mäkelä, H. Haukka, A. Oksanen, P. Kehusmaa, and V.-P. Hentunen

Kehen yhteyttä?

- Allekirjoittaneeseen harri.haukka@fmi.fi
- •Sessioiden pitäjiin > yhteystiedot
- •LOC
 - Amara Graps (Chair), graps@psi.edu
 - Manuel Grande, <u>m.grande@aber.ac.uk</u>
 - Copernicus Meetings, Mario Ebel, epsc2017@copernicus.org