Europlanet 2020 RI EO projects focusing on Extreme Habitable Worlds

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EPSC europlanet

About Europlanet

Since 2005, the Europlanet project has provided European's planetary science community with a platform to exchange ideas and personnel, share research tools data and facilities, define key science goals for the future and engage stakeholders policy makers and European Citizens with planetary science.

Europlanet history

Date	Funding	Project	Budget	Activities	Participants
2005-2008	FP6	European Planetology Network (Coordination Action)	2 M€	Networking activities (NA)	42 Partners from 17 Countries
2009-2012	FP7	Europlanet Research Infrastructure	6 M€	Networking Activities, Transnational Access, Service Activities and Joint Research Activities	27 Beneficiaries + 16 Associate Partne from 25 Countries
2013-	N/A (self-sustaining)	Europlanet Community MoU	-	Community organisation	70+ Signatories
2015-2019	Horizon 2020	Europlanet 2020 RI (Advanced Research Infrastructure)	10 M€	NA, TNA, JRA and services	33 Beneficiaries + 22 Associate Partne from 22 Countries

Europlanet 2020 Research Infrastructure:

- - Advanced Research Infrastructure
- - 10M Euros funding from European Commission through Horizon 2020*
- - 33 Beneficiaries
- - 22 Associate Partners
- - 22 Countries
- - Launched 1st September 2015. Runs to 31st August 2019

Goal:

- To integrate and support the European planetary science community

* *H2020 research and innovation programme under grant agreement No 654208*

Image: Matis/Europlanet

Networking activities, including meetings, workshops and personnel exchanges, to strengthen the community, develop industry-academic collaboration, discuss latest scientific results, and set the strategy and goals for planetary science in Europe for decades to come.

amateur astronomers.

- Fostering industrial-academia collaborations, through innovation working groups and technical roadmapping
- Supporting young scientists (20% workshop places set aside for early career researchers)

25 workshops over the 4 years of Europlanet 2020 RI:

- Topical science workshops
- Strategic scientific workshop, organised by International Space Science Institute
- Coordination meetings for ground-based observational campaigns
- Technology foresight workshops with industry

Exchange program - short term visits and exchange of personnel

http://europlanet-scinet.fi/index.php?id=na1epn2020

A central part of the Europlanet 2020 RI programme is to allow any European researcher interested in pursuing planetary science research access to a comprehensive set of laboratory facilities and field sites tailored to the needs of planetary research.

(DPSF)

Planetary Emissivity Laboratory, DLR, Berlin

Planetary Environment Facilities, Aarhus University, Denmark

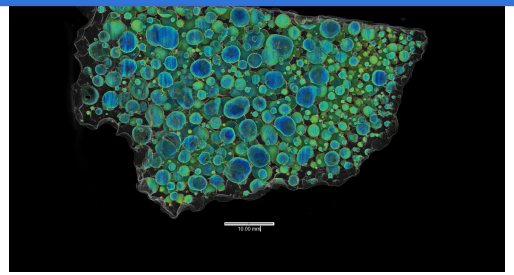
Mars Chamber, Open University, UK

High-pressure laboratory, VU University, Netherlands

Cold Surfaces spectroscopy, IPAG, Grenoble, France

Interactive Microbiome Research Facility, Medical University Graz, Austria

Petrology-Mineralogy Characterisation Facility, Natural History Museum, UK



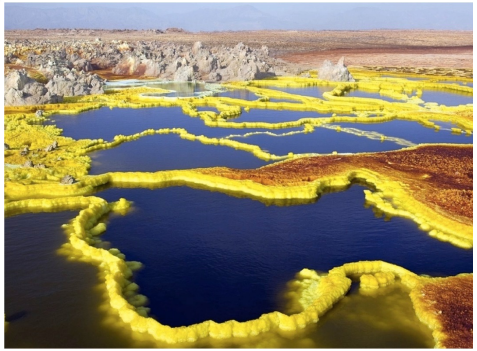
DPSF provide free transnational access to world-class laboratory facilities t
It also includes the possibility to characterize the texture and mineral compo

PFA offers access to 5 well-characterized terrestrial field sites-most realistic analogues of Mars, Europa and Titan

1. 

2. 

3. 

4. 

5. 

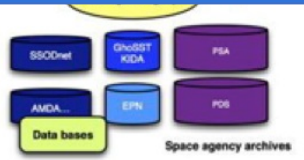
Planetary Analogue Field Sites

1. **Rio Tinto, Spain**
2. **Ibn Battuta Centre, Morocco**
3. **Glacial and volcanically active areas of Iceland**
4. **Danakil Depression, Ethiopia**
5. **Tírez Lake, Spain**

PSWS is a virtual access service, aiming to extend the scope of space weath

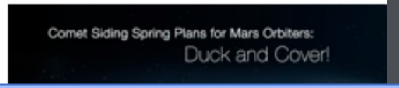
understanding planetary environments

http://www.europlanet-vespa.eu



Planetary Space Weather Services (PSWS)

- Services to trace propagation of planetary/solar events through the Solar System and model the response of the planetary environment



VESPA aims at building a virtual observatory for planetary science providin

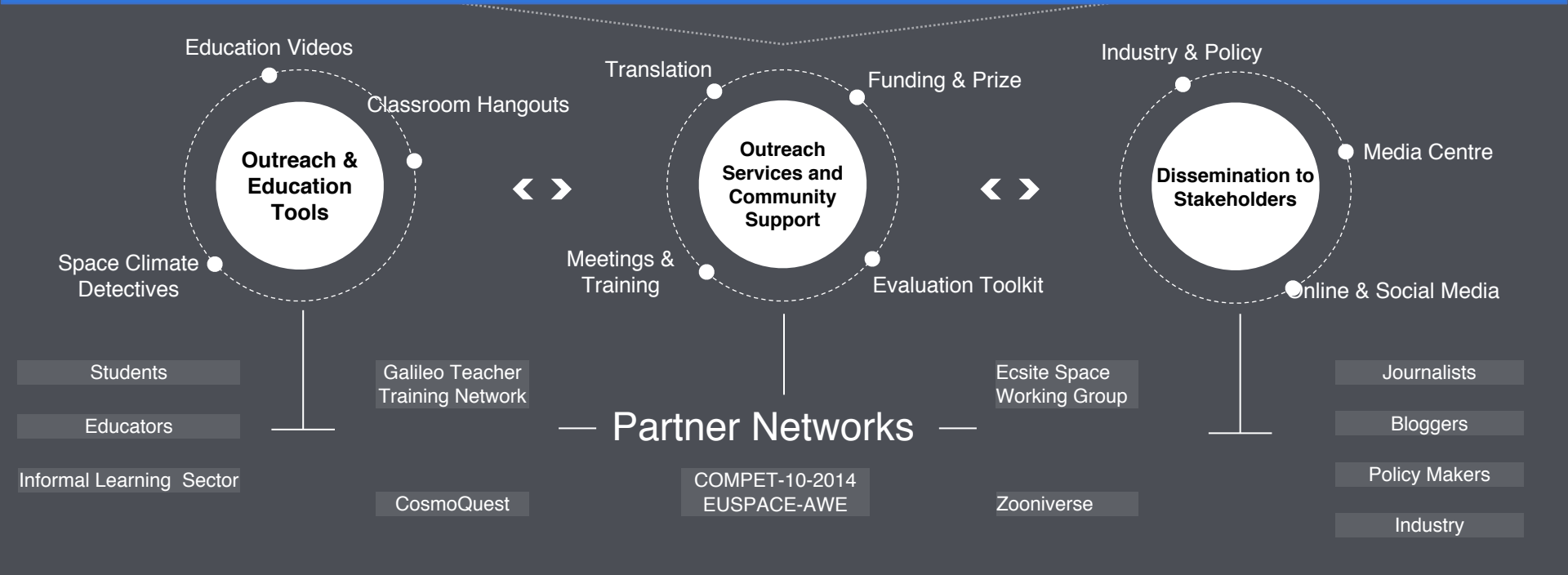
Planetary science covers the study of our solar system and those around other stars. It is an interdisciplinary field of research that covers astronomy and geophysics, robotic and human exploration of other planets, as well as the search for extra-terrestrial life.

As an Advanced Infrastructure, Europlanet 2020 RI places particular emphasis on widening the participation of previously under-represented research communities and stakeholders, including new EU Member States.

How outreach fits into Europlanet 2020 RI
Widening Participation

www.europlanet-eu.org

We have an active outreach and dissemination programme to engage European citiz



Meetings and Training

- Best practice & training sessions
- Outreach expert workshops
- Training for communicating with media, schools, policy makers and public audiences

promotes public engagement through science communication, yearly training and best practice workshops: aim in developing new ways of communicating planetary science subjects or engaging "hard-to-reach" subjects or engaging "hard-to-reach" planetary science.

Seed funding innovation by setting

prize for public engagement & science communication, to encourage planetary scientists to communicate research to wider audiences and to encourage partnerships between scientists and educators and communicators.

lation

ools

sources

edia releases

Funding Scheme 2016

Your Planet in a Room (7,500 Euros)

Speak Science , Italy

Project to develop a self-build kit for a 'science on a sphere' exhibit for just 300 Euros. Free access to planetary data displays

Europlanet Prize 2016

Stéphane Le Mouélic and François Civet (4000 Euros Prize)

Development of immersive martian landscapes for the public using virtual reality techniques (Occulus Rift and Google Cardboard) and "Mars Cave" group exhibit.

Funding Scheme 2017

Planets in your hands (7,000 Euros)

National University of Athens, Greece

Project to construct models of planetary surfaces in square frames, giving a visual and tangible representation of a wide range of environments in our Solar System.

OpenPlanetaryMap (10,000 Euros)

SpaceFrog Design, France

A mapping and social platform for space enthusiasts and students, planetary researchers and mappers, educators and story tellers.

Europlanet Prize 2017

Curator team of outstanding exhibition, (4000 Euros Prize)

Comets – The Rosetta Mission: Journey to the Origins of the Solar System, exhibition at the Museum für Naturkunde, Berlin

Engaging with audiences

The Europlanet Media C
Europlanet's social media
provide news from the
planetary science comm
commentary on planetary ev
releases, blogs, interviews, li

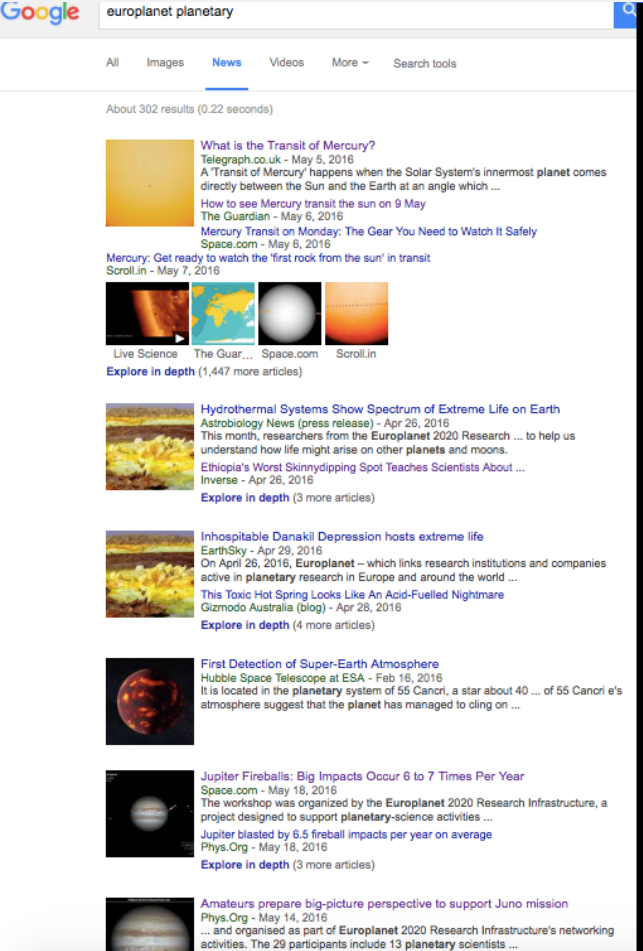
Policy engagement (Dinner
debates, briefings, conference
sessions and exhibitions to engage
policy makers with the cutting-
edge science and technological
challenges of planetary science
and exploration)

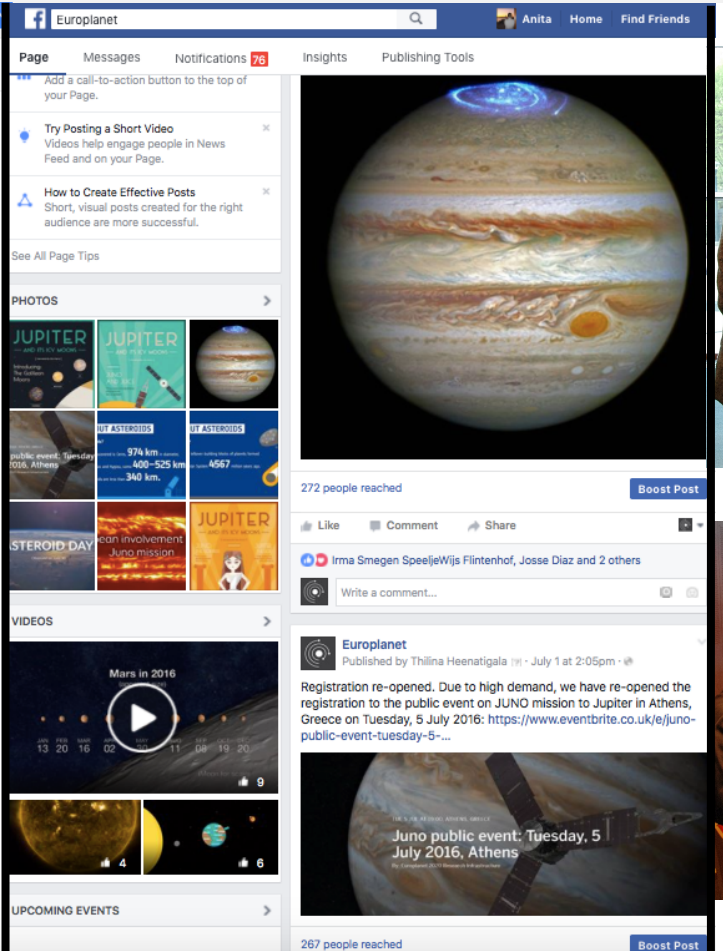
EPSC outreach sessions rich
Policy & sociocultural aspects of planetary exploration,
Education capacity building & training, Planetary science & arts.

- Promotion to media of EPSC, meetings, workshops & Europlanet 2020 science results
- Live & virtual press events (e.g. Google Hangouts on Air)
- Expert voices, op-ed pieces and spokespeople
- PR distribution service

Media and Policy

www.europlanet-eu.org





Producing new resources

We develop outreach & Educational tools, planetary video shorts. Aimed at schools and general audiences, translated to different languages.
Space climate detectives kit for students to build Arduino-based climate monitors with central online platform to share data.
Live link-ups with scientists on TA field trips to planetary analogue sites.

Planetary V

•5 short popular sci

•Approx 5 minutes

•Aimed at schools/g

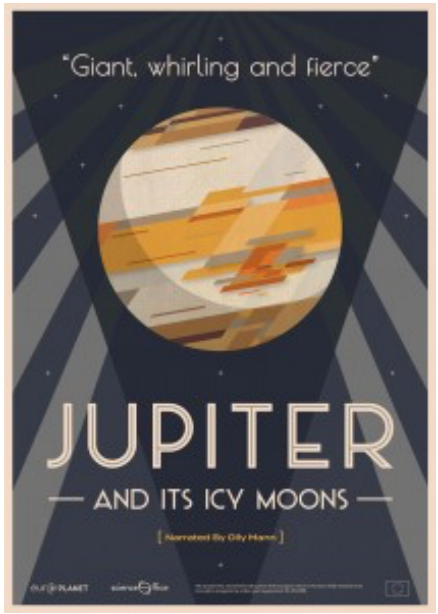
•Animated to facilita

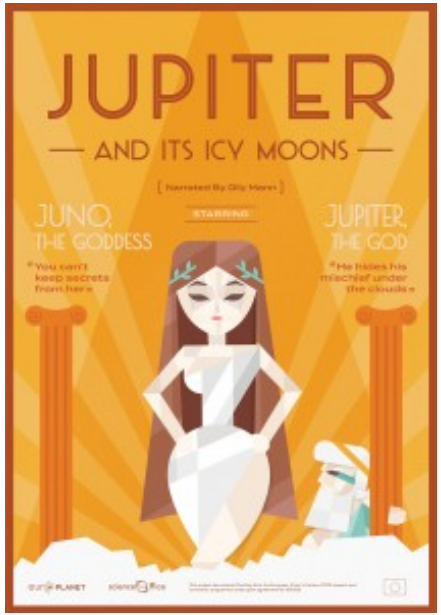
A field trips to

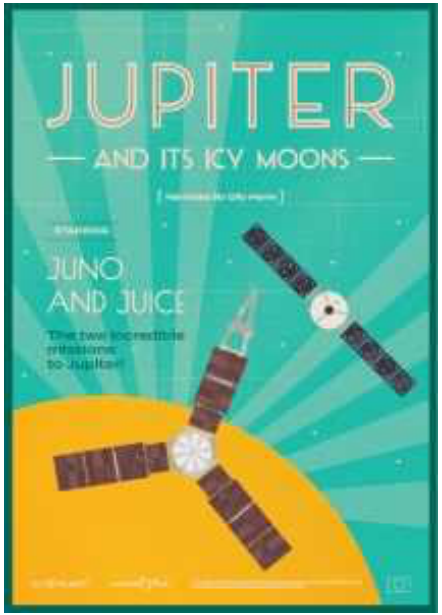
•Kit for students to build Arduino-based climate monitors

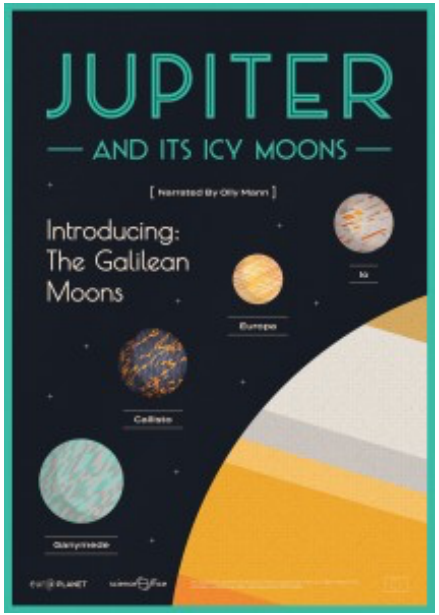
•Central online platform for students to share data

•Comparative planetology data to put Earth's climate into context with other planets and moons

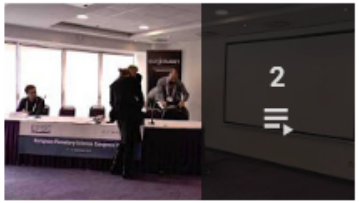

"Giant, whirling and fierce"
JUPITER
AND ITS ICY MOONS
[Narrated By Olly Mann]


JUPITER
AND ITS ICY MOONS
[Narrated By Olly Mann]
STARRING
JUNO,
THE GODDESS
"You can't keep secrets from her"
JUPITER,
THE GOD
"He hides his mischief under the clouds"


JUPITER
AND ITS ICY MOONS
[Narrated By Olly Mann]
STARRING
JUNO
AND JUICE
The two incredible missions to Jupiter!

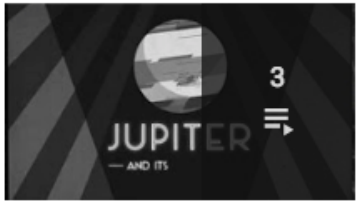

JUPITER
AND ITS ICY MOONS
[Narrated By Olly Mann]
Introducing:
The Galilean
Moons
Io
Europa
Callisto
Ganymede

Created playlists

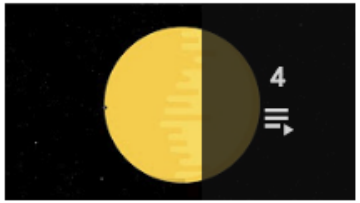


Press Briefing

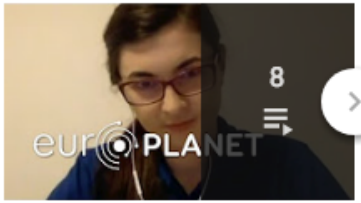
Astrobiology



Juno Mission



Transit of Mercury



Europlanet Hangouts

Updated 5 days ago

Uploads PLAY ALL

Europlanet webinar: Chasing the devil – what do dust

10 views • 5 days ago

Europlanet Webinar: Cassini-Huygens and The Lord of the

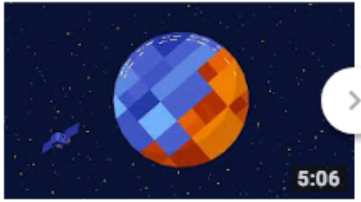
41 views • 2 months ago

EPSC2017 Press Briefing: Pushing the Boundaries of

29 views • 2 months ago

EPSC2017 Press Briefing: Cassini/Comet Siding Spring

10 views • 2 months ago



Astrobiology: Life in the Universe

1.1K views • 2 months ago

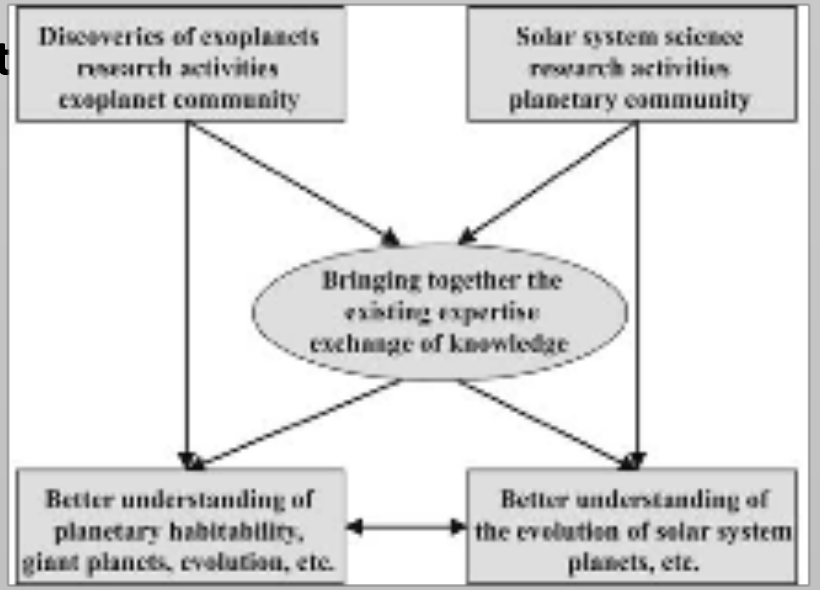
Exoplanet Discipline Working Group

Europlanet N2 early activity (discipline working groups to maximize science return through activities synergies)

Two main scientific areas:

- **Terrestrial exoplanets → planetary habitabilit**
- **Short periodic Jupiter-like exoplanets**

In its early days Europlanet established an EDWG on issues related to the characterisation of exoplanets, including long-time habitability, requiring the joint expertise of Europlanet scientists



Cultural, societal, and psychological implications of astrobiology research and exploration.

Major Goals of the Astrobiology Roadmap of Societal Issues*

A: Range and complexity of societal issues related to how life begins and evolves.

(religious, ethical, legal, cultural concerns on sc. research on the origin, evolution, nature of life.

B: Significance and meaning of life.

C: Relations of humans with Earth, its life and environments.

D: Potential relationships/interactions of humans with "other" worlds and types of life, implications

E: Life's collective future—for humans and other life, on Earth and beyond.

(impacts on life and future evolutionary trajectories that may result from both natural events and human-directed activities in the short and long terms)

Image: Matis/Europlanet

*Astrobiology and Society: Building an Interdisciplinary Research Community, M. Race et al.10.1089/ast.2011.0723

Planetary Field Analogues

One of the most important activities of Europlanet

- ***Rio Tinto Field Site, Spain:*** The minerals and water chemistry resemble the wet environments on early Mars, scientists are using to understand what kind of life could have emerged on the Red Planet, and how biosignatures could still be preserved.
- ***Ibn Battuta Centre, Morocco***
- ***The glacial and volcanically active areas of Iceland*:** Testing of equipment and methodologies to be employed in future Mars missions, research into geological and geo-chemical interaction between rocks and microorganisms & how this might influence biosignatures.
- ***Danakil Depression, Ethiopia*:** Dallol crater, the hottest place on Earth. Extremophiles can inhabit this environment of bubbling lakes of boiling water, acid pools, or sulphur spouts. Scientists are using this alien-like world as a field site, to find out how life might arise on other planets, such as Mars.
- ***Tírez Lake, Spain:*** Has features like in Jupiter's moon Europa (one of the most likely locations to find life in the Solar System due to its sea of salty liquid water underneath its icy crust. By studying the extremophiles that inhabit here astrobiologists can find out what kind of creatures could possibly lurk in Europa's ocean.

Image: Mats Europlanet

Outreach and Education linked to Danakil

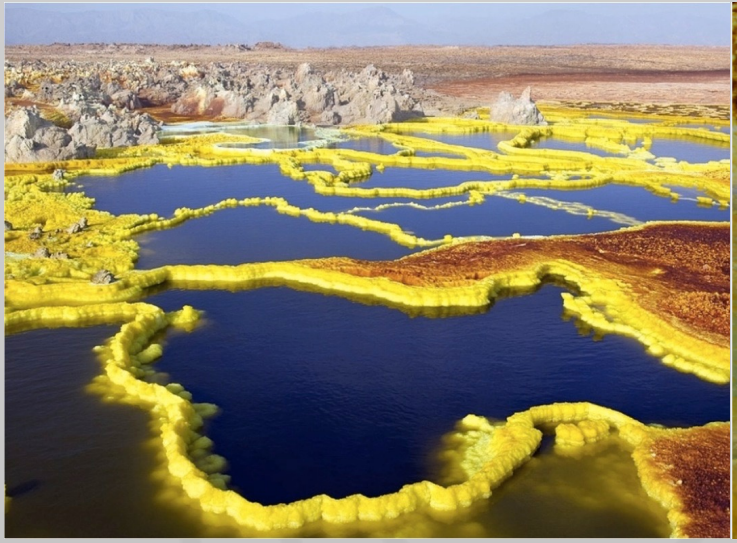


Image: Matis/Europlanet

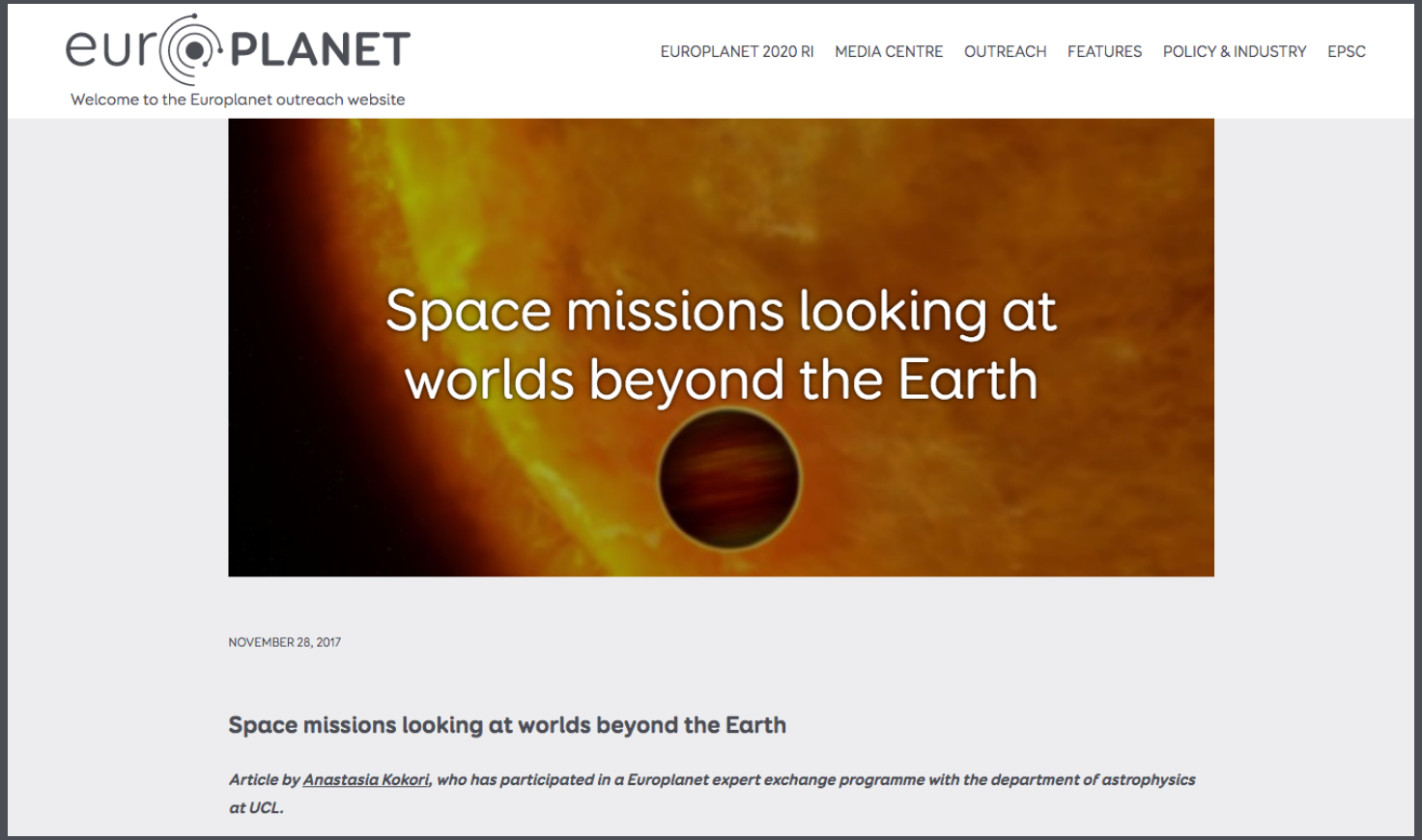
Europlanet is working with partners including Space Awareness, the Mekelle University and the University of Bologna to create a coordinated outreach strategy for activities related to the Danakil site. Our aim is that all visits to the site should incorporate some form of outreach activity. We are also looking to develop collaborations with teachers, schools and students in Tigray, Afar and other states in Ethiopia.

PFA offer access to these well-characterised terrestrial field sites that have been selected so as to provide the most realistic analogues of surfaces of Mars, Europa and Titan, to which planetary missions have either recently been directed or are planned.

Access is provided for scientists to perform high quality scientific research and test instrumentation for space missions under realistic planetary conditions and undertake comparative planetology research.

In addition to PFA, Virtual Access activities (VESPA) are making available the diverse datasets and visualisation tools needed for comparing and understanding planetary environments in the Solar System and beyond.

Europlanet expert exchange for journalists and science communicators:



Joint Summer School, Best Practice & Training workshops

Instead of organising a stand-alone science communication training workshop in 2017, it joined forces with Europlanet Summer School at the Molėtai Astronomical Observatory in Lithuania.

Innovative programme to equip young researchers and amateur astronomers with skills in observational astronomy and in science communication (engaging with different audiences & using different communication channels).

We could well imagine such an event organized on the theme of, exoplanets, astrobiology and planetary habitability.

THE SCIENCE NEWSPAPER
News. Events. Articles. Interviews. Calendar.

Europlanet 2020 Research Infrastructure: Rainbow-coloured hydrothermal systems show spectrum of extreme life on Earth

Thursday, April 28, 2016 , Author: Catalin Mosoia, Bucharest, Romania

Print page

The Danakil Depression in Ethiopia is one of the most inhospitable places on Earth. Water at near-boiling temperatures bubbles up from underground, high salt concentrations create multi-coloured structures, and chlorine and sulphur vapour fogs the air. This month, researchers from **the Europlanet 2020 Research Infrastructure**, carrying out **the first investigation into the site's geology**, mineralogy and biology, have found that **the Danakil Depression hosts at least three extreme ecosystems that have the potential to help us understand how life might arise on other planets and moons**.

"There are very few scientific publications on the site and no biological descriptions, so we are genuinely exploring new ground from a scientific point of view," said **Dr Felipe Gómez Gómez** of the Centro de Astrobiologia (INTA-CAB) in Madrid, who led the expedition. "It is an amazing but hostile place - the temperatures were 42 degrees Celsius during the day and 30 degrees at night, and the chlorine vapour burned our airways. Any microorganisms living here will be extremophilic microbes of a major interest to astrobiologists."

The Danakil Depression is a volcanic area that stretches from the Dallol Volcano to Lake Assal, close to the Ethiopian border with Eritrea. The area is more than 100 metres below sea level and magma flows very close the surface. Rainwater and seawater from the nearby coast are heated by the magma and forced to the surface, carrying many different salts in solution. In some areas, where the upwelling water is 90 degrees Celsius and highly acidic, high concentrations of sulphur create bright yellow chimneys. Elsewhere, pools of water at 40 degrees Celsius are coloured a turquoise green by copper salts.

Contacts

Videos: Mariana Barrosa

Media: Anita Heward

Social Media - Thilina Heenatigala

Policy/Industry – Livia Giacomini

Training/Space Awareness/AstroEdu - Pedro Russo

Best practice/Workshops: Eleni Chatzichristou/Grazina Tautvaisiene

Prize/Funding Scheme – Régis Courtin

Teacher training – Rosa Doran

Live classroom link-ups – Gernot Groemer

Evaluation – Catherine Aldridge/Karen Bultitude

Planet P.I.– Amara Graps/Felipe Gomez