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PU	Public	X
PP	Restricted to other programme participants (including the Commission Service)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (excluding the Commission Services)	

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Abstract:

This deliverable provides the additional details on Transnational Access to Planetary Field Analogue Sites provided by EPN2020-RI through the TA1 call.

It complements D1.5 that provides general call information.

TA 1 Planetary Field Analogue Sites

The planetary field analogue sites include two that were highly successful in the previous Europlanet-RI and details of the acidic environment of Rio Tinto and the desert environment of the Ibn Battuta of Morocco can be found at:

Rio Tinto Field Site (managed by INTA-CAB)



Contact Felipe Gómez

Ibn Battuta Centre (managed by International Research School of Planetary Sciences; IRSPS)



Contact Gian Gabriele Ori

Three new and highly diverse sites are to be made available:

- The glacial and volcanically active areas of Iceland
- Danakil Depression, Ethiopia
- The highly saline Tírez Lake (Spain).

Iceland: (managed by Matis)

Contact Viggó Þór Marteinsonn

Matis has an extensive track record of managing field related research on Iceland, particularly with respect to surveys of life in young and extreme geological environments. They aim to provide the infrastructure to facilitate access to the glacial and sub-glacial environments, and young volcanic areas and active hydrothermal systems. Dr Viggó Þór Marteinsonn is the contact person in relation to this planetary field analogue site:



Figure 1: Drilling to sample the

Skaftarkatlalon sub-glacial lake.



Figure 2: Source of the Morilla sub

glacial river.



Figure 3: Google map showing the location of samples obtained from the Island of Surtsey, formed by a volcanic eruption in 1963.

The following two locations will be available from early 2107.

Danakil Depression, Ethiopia stretches from the Dallol Volcano to Lake Assal. The plain is one of the most impressive depressions in the Afar and one of the most inhospitable areas on Earth. A large number of extreme environments form an intricate complex geological and biological setting comprising volcanoes, hydrothermal systems, salt flats and deposits, and extreme microbial communities. Volcanic activity started more than 5 million years ago and continues today in the form of hydrothermal vents and the active Erta Ale volcano. Further research is planned by IRSPS to fully characterize the region (geological and hydrological maps and a reconnaissance study of the biota). The field site will be managed by Professor Ori (IRSPS) who works closely with Professor Mirtus Hagos of the University of Mekele and Barbara Cavalazzi University of Bologna



Figure 1: Small pond at the margin of a hydrothermal system depositing a variety of sulphates and iron oxides.

Tírez Lake (Spain) has been proposed to have hydrogeochemistry and geochemical features comparable Europa's ocean, a satellite of the Jupiter system. Tírez waters comprise Mg-Na-SO₄-Cl brines with epsomite, hexahydrite and halite as end mineral members. Frozen Tírez brines are comparable to Galileo spectral data obtained from Europa. Calorimetric measurements have constrained the pathways and phase metastability for magnesium sulfate and sodium chloride crystallization from these waters, which may aid in understanding the processes involved in the formation of Europa's icy crust.

The lake undergoes major seasonal changes but life is prolific in this hyper-saline environment. Tírez contains two different microbial domains: a photosynthetically sustained community represented by planktonic/benthonic forms and microbial mats, and a subsurficial anaerobic realm in which chemolithotrophy predominates. Further research is planned by INTA-CAB Madrid to fully characterize the region so that it becomes a site available for access in the second part of the research infrastructure. For examples, on-going work is examining how the halophiles tolerate the extreme environmental stress and in some cases protect themselves against some damaging radiation using salt minerals. Dr Felipe Gomez is the contact person in relation to this planetary field analogue site.