



## EPN 2024 RI

### EUROPLANET 2024 Research Infrastructure

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1. **Nature:** R = Report, P = Prototype, D = Demonstrator, O = Other

2. **Dissemination level:**

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

### **Executive Summary / Abstract:**

The first TA call was rapidly and successfully implemented and offered 5 TA1-Planetary field analogues sites (PFAs).

Call 1 opened on 25<sup>th</sup> Feb 2020 and closed May 5<sup>th</sup> 2020. The peer review and normalisation of the evaluations of the sub-panels were completed on June 16<sup>th</sup>, discussed and approved by the PMC and published 30<sup>th</sup> June. Despite the rapid implementation of the TA call there were 80 applications (for the TA 1 & 2 facilities combined), of which 41 were funded. COVID-19 has had a huge impact on the implementation of TA visits. Visits planned for the autumn-winter of 2020 were cancelled. In response to the challenge of the COVID-19 outbreak, the possibility of providing virtual access (near-real time) to the field sites has been seriously considered. In agreement with the field site leaders and considering the poor wifi/internet connections in the remote areas of the PFAs, it has been decided to postpone the start of the field visits of the 2020 grantees to the end of 2021.

Call 2 was opened in November 2020 and closed on Jan 6<sup>th</sup> 2021. However, due to the political instability of Ethiopia at the end of 2020, the PFA-Danakil Depression was not included, thus only 4 facilities were offered in Call 2. 101 applications were received in Call 2 for both TA1 and TA2.

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## Deliverable

### 1. Explanation of work & Overview of progress

The Europlanet 2024 Research Infrastructure (EPN-2024-RI) provides access to well-characterised terrestrial field sites and a unique set of laboratory facilities capable of simulating the wide range of environments encountered on planetary bodies.

The Planetary Field Analogues (PFA), TA1, provides access to 5 well-characterised terrestrial field sites located in Ethiopia, Spain, Iceland, Botswana and Greenland, that simulate a wide range of environments encountered on planetary bodies. The initial 7 TA1-PFAs, were reduced to 5 as the PFA-Argentinian Andes Field Sites (AAFS) led by CONICET, and the Nördlinger Ries- Steinheim Binary Impact Site (RSBIS) led by Geopark Ries, were unable to join the Project from the outset. AAFS is due to rejoin the Project in the next Grant Amendment and will be included for TA Call 3. RSBIS is unfortunately unable to rejoin the Project due to a lack of administrative support at the facility.

Given the recent political instability in Ethiopia recently (October-December 2020), the EPN-2024-RI TA1 Call 2 for application was unable to include the Ethiopian Danakil Depression field site.

There is an urgent need for access to these field facilities because Europe is operating, preparing and planning a fleet of spacecraft to investigate the surface and atmospheric environments and compositions of Mercury, Venus, Mars, Jupiter, Titan, Europa, Uranus, Neptune, comets, asteroids and the Moon. These disparate bodies host remarkably diverse environments, many incomparable to terrestrial conditions. The TA1 PFAs will provide support for key mission goals by enabling: validation of instrument design and performance; measurements to interpret surface and atmosphere observations from planetary bodies (e.g. composition, temperature, texture, etc.); a better understanding of the physical and geological processes that formed specific planetary environments, evaluation of the biogeochemical processes that control the likelihood that life could evolve or survive.

The state-of-the-art TA facilities offer realistic, diversified and well-characterised analogue field sites and support of expert geologists. PFAs are led by expert and internationally respected field geologists that have decades of experience working in the specific analogue sites.

The teams of the combined TA1 and TA2 infrastructure have produced >100 publications in the highest ranked journals (Nature-Science family, PNAS) over the last 5 years and are involved in missions involving international space agencies (e.g. ESA-JAXA HERACLES and NASA’s Mars 2020). The EPN-2024-RI TA facilities represent an investment of well over €50 M (excluding buildings).

The management of the overall TA programme (including both TA1 and TA2) is coordinated by the TA Sub-Committee (VUA, NHM, DLR, AU and UNIBO) and supported by the TA office at the VUA that also provides the secretarial support. In collaboration with WP11 NA1 a TA application workshop was held on 3<sup>rd</sup> December to aid people to write stronger applications to the second TA call. The focus

of the workshop was to provide practical advice to applicants. Publicity of the workshop concentrated on attracting participants from under-represented states.

### 1.1 Objectives

As explained above, the aim of TA1 is to provide the international community with access to 5 well-characterised Planetary Field Analogues (PFA), located in Ethiopia, Spain, Iceland, Botswana and Greenland, that simulate the wide range of environments encountered on planetary bodies such as Mercury, Venus, Mars, Jupiter, Titan, Europa, Uranus, Neptune, comets, asteroids and the Moon. Europlanet aims to expand the facilities available for the TA program through strategic international collaborations. The field sites in the Argentinian Andes (dry-cold, extreme glacial and lacustrine environments of the Andes of Argentina Puna region, and wet-cold environments of Patagonia and Tierra del Fuego region) are being added through the inclusion of CONICET as a beneficiary in the Grant Amendment. These sites will be available from TA Call 3. Work carried out in collaboration with NA1 in Year 1 of the project has scoped a reciprocal agreement between EPN 2024 RI and the Chinese Academy of Science, which will allow European researchers access to a number of PFA in China whilst Chinese researchers can access Europlanet 2024 RI facilities.

### 1.2 Explanation of the work carried in WP

The first TA call was rapidly and successfully implemented and offered access to all 5 TA1 field facilities. The call was opened on 25<sup>th</sup> Feb 2020 and closed May 5<sup>th</sup> 2020. Applications are anonymous and peer reviewed by experts independent from the EPN 2024 RI project, a process managed by the ESF. The peer review and normalisation of the evaluations of the sub-panels was completed on June 16<sup>th</sup> 2020, discussed and approved by the PMC and published 30<sup>th</sup> June 2020. Despite the rapid implementation of TA call there were 80 applications (for TA1 and TA2 facilities combined), of which 41 were funded. One application was excluded due to lack of anonymity and six were found to be technically unfeasible. The COVID-19 outbreak has had a huge impact on the implementation of TA visits in 2020.

All visits planned for 2020 were cancelled. In agreement with the field site leaders we decided to postpone all the field visits (from 2020) to the end of 2021. Furthermore, the feasibility of field visits in the Danakil Depression, given the political instability in Ethiopia in the last months of 2020, will be re-evaluated in autumn 2021 and alternative solutions are also being considered. The implementation period of TA visits approved under Call 1 has been extended to the end of 2021 and will continue to be monitored.

Despite COVID-19, TA applications were higher for Call 2 than were submitted in Call 1. 101 applications were received an increase of 25% on Call 1, underlining the demand from the community for TA access, even during the time of COVID restrictions.

In collaboration with WP11 NA1 Widening Participation Task, a TA application workshop was held on 3<sup>rd</sup> December to aid applications to the second TA call. The focus of the workshop was to provide practical advice to applicants. The workshop was attended by 57 participants, of which about half were early career scientists, and 16 (28%) were from under-represented states.

### 1.3 Impact

To date due to pandemic imposed travel restrictions, no TA1-PFA visits have been conducted.

### 1.4 Access provisions to Research Infrastructures (if applicable)

EPN-2024-RI has responded to the challenge at hand by setting up alternative initiatives (e.g. series of webinars) and dedicated service in response (e.g. remote access to the TA2 laboratory facilities) to the COVID-19 outbreak. However, although TA1-PFAs considered the possibility of providing virtual access (near-real time) to the field sites, in agreement with the field site leaders we decided to postpone the field visits to the end of 2021. The expertise of the awarded scientists cannot be replaced in the field. However, the situation at the start of 2021 is still not looking encouraging and unnecessary national and international travel is discouraged. We are considering protocols for providing remote access to the field

sites (if national travel is allowed), however, the poor or non-existent internet connections of the PFA remote area have to be taken in account.

Given the recent political instability in Ethiopia recently (October-December 2020), the EPN-2024-RI TA1 call 2 for application did not include the Ethiopian field site. However, Prof. M. Hagos of Mekelle University (EPN-2024-RI beneficiary), leader of the Danakil Depression PFA, confirmed that the situation is settling down and that Mekelle University will be operative soon.

## **2. Update of exploitation & dissemination plan**

Extensive communication with the community has been undertaken to keep them informed of the impact of COVID-19 on the implementation of TA visits. This has clearly been successful as there are more applications expected in TA Call 2 than Call 1, despite the impact of COVID-19 on access to TA facilities.

## **3. Update of data management plan**

Not applicable to the TA1-PFA; in 2020, no TA1-PFA visits to the field were undertaken.

## **4. Follow-up of recommendations & comments from previous review(s)**

Not applicable to the TA1-PFA; in 2020, no TA1-PFA visits to field were undertaken. However, informal feedback from the TA review board is that we have been effective in maintaining contact with the community and stimulating applications for TA visits.

## **5. Deviations from Annex 1 (DoA)**

### **5.1 Tasks**

COVID-19 has had major impact on the start of the implementation of TA visits. Hence the implementation of all TA facilities is behind schedule. Specifically, all TA1 visits will be undertaken (if possible) by the end of 2021. The period of time over which the implementation of a TA visit can be undertaken has been extended to 18 months and can be extended further if necessary.

### **5.2 Use of resources**

COVID-19 has had major impact on the start of the implementation of TA visits. Hence the expenditure of all TA facilities is behind schedule. Specifically, all TA1 visits will be undertaken (if possible) at the end of 2021. The period of time over which the implementation of a TA visit can be undertaken has been extended to 18 months.