

MASE LOGOS



PHOTOS



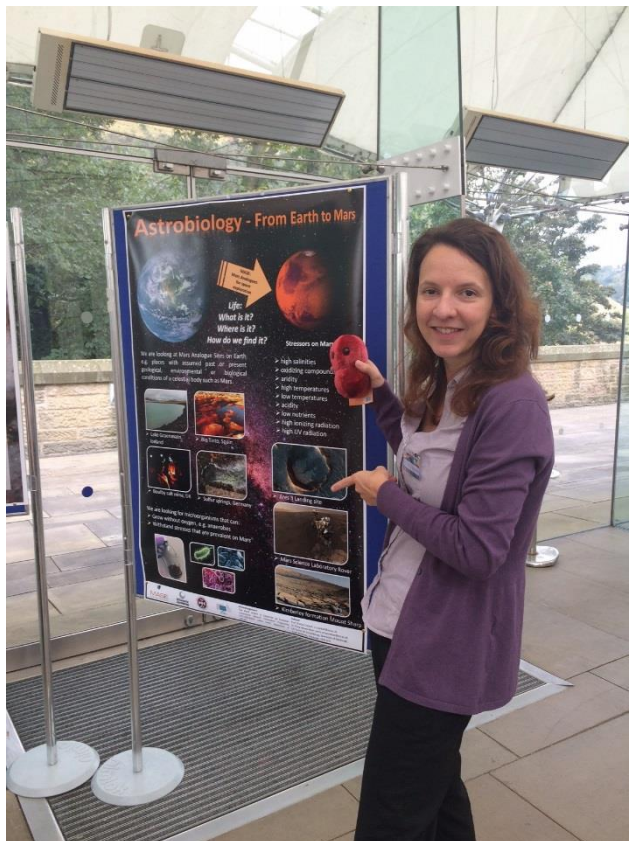
Collecting samples in Boulby Mine.



Lake Graenavatn in Iceland, one of the Mars-analogue environments that has been sampled during the MASE project.



Regensburg sulphidic spring in Germany, one of the Mars-analogue environments that has been sampled during the MASE project.



Dr. Petra Schwender participating in an outreach activity to disseminate astrobiology related topics among the general public.



The MASE team during the fieldwork campaign at Boulby Mine.



Dr. Frances Westall during the third MASE press conference at the Centre de Biophysique Moleculaire in Orleans,



Salt brine at Boulby Mine, one of the Mars-analogue environments that has been sampled during the MASE project.



MASE team during the last scientific meeting at University of Graz.



Collecting samples during a fieldwork campaign in the Regensburg sulphidic springs.



Overview of Mars analogue sites analyzed in the MASE project: Rio Tinto, Regensburg sulphidic springs, Lake Graenavatn and brines at Boulby Mine (from left to right).



Degassing samples during the fieldwork campaign at Boulby Mine.



Dr. Charles Cockell presenting the MASE project at the 2016 European Astrobiology Network Association.



From Earth to Mars, towards understanding better the red planet habitability

Assessing the habitability of Mars and detecting life, if it was ever there, depends on knowledge of whether the combined environmental stresses experienced on Mars are compatible with life and whether a record of that life could ever be detected. However, our current ability to make these assessments is hampered by a lack of knowledge of how the combined effect of different environmental stresses influence the survival and growth of organisms. In particular, many combinations of stress, such as high radiation conditions combined with high salt and low temperature, relevant for early Mars, have not been investigated.



> Editorial: In the final stage of the MASE project

2016 has been such a busy year for MASE. The consortium has been very active attending a variety of scientific events, preparing two feedback campaigns and submitting the first publications.

Next year will be an exciting and occupied time for MASE since it will officially reach its end. Upcoming activities will encompass a press conference at CNRS Orléans with a focus on fossilisation of microorganisms and how this helps to search for extraterrestrial life. Furthermore, a workshop will be organised in collaboration with the European Astrobiology Research Association (EARA) in Aarhus which will address life from extreme environments and its use in analog studies.

So far, MASE has successfully achieved its objectives, disseminating their activities and results through a variety of communication platforms, establishing new collaborations within the European astrobiology community and leveraging a huge amount of science that is in the process of being published.

Primarily to serve the scientific community, the MASE team will deliver fundamental information about how analog environments provide focus for sound science, technology testing and protocol development.

Phil. Charles Cockell
MASE Coordinator

> Earth Analogue Workshop

Last October the MASE project was invited to attend an Earth Analogue Workshop at the Research Executive Agency in Brussels (Belgium). The high level goal of this Earth Analogue Workshop was to bring together a community that shares common interests. Noticing the sharing of best practices and lessons learnt but also exploring the exploitation potential of the projects.

The EC ESA European Astronaut Centre was also invited to this workshop to present their activities and their plans for the expansion of their site but also to explore potential synergies with the invited projects.

Eight European projects were invited:

- Habitat: **SHOE** (Self-deployable Habitat for Extreme Environments) and **BIODOLIGHT**
- Human space flight: **EDEN ISS** and **MOONWALK**
- In situ characterisation: **PTAL** (Planetary Terrestrial Analogue Library), **UPCD** (Ultra-Planetary Core Drills) and **MASE** (Mars Analogues for Space Exploration)
- Sample curation: **EURO-CARES**



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> Editorial: Looking-off the last year of MASE

2017 will be an exciting time for MASE since the project is reaching its end. The consortium is now focused on producing scientific publications and attending a variety of scientific conferences for dissemination.

Recently, the exobiology team at the "Centre de Recherche Moléculaire" led by Dr. Francis Westall hosted the third and last press conference of the MASE project. In parallel, the MASE consortium held a scientific meeting to discuss project's progress, new scientific collaborations and upcoming publications. This month, several members of MASE will fly to Arizona to present results in the Astrobiology Science Conference 2017 that will put emphasis in the topic of life detection in exoplanets. Furthermore, we will host a session focused in anaerobic extremophiles and its use in analog studies in the next European Astrobiology Network Association conference. We actively seek to expand collaborations and create synergies with other analogue research teams so do not hesitate to approach us towards building complementary activities.

MASE results will provide better understanding of the nature of potential Martian biosignatures and the techniques that will be necessary to investigate them. We hope to implement a step change in our understanding of Martian habitability and our ability to detect traces of life.

Phil. Charles Cockell
MASE Coordinator

> MASE attending AuSoCon 2017

The Astrobiology Science Conference 2017 (AuSoCon 2017) will be held April 24-28 2017 in Mesa, Arizona. The theme for this year is "Diverse Life and its Detection on Different Worlds." Mars and its worlds in our solar system are increasingly recognized as habitable, even as increasing numbers of exoplanets in their stars' habitable zones have been discovered. The focus is shifting from identification of habitable worlds, to detection of life in them. Other topics that will be covered include geochemistry, biochemistry, biomarkers in planetary ecosystems, biogeochemical cycles on water worlds, biosignatures on exoplanets and astrobiology outreach.

The MASE team will be attending the conference and presenting 8 communications. AuSoCon 2017 will provide a forum for reporting on new discoveries, sharing data and insights, advancing collaborative efforts and initiating new ones, planning new projects, and educating the next generation of astrobiologists. The conference will feature plenary sessions on current and thought-provoking topics, topical sessions, evening programs, and public and educational events.

To browse the conference program click here.



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> Editorial: Realising and maximising MASE Impact

After almost 48 months of intense activity, the MASE project will reach its end in December 2017. During the last months, the MASE team has been working to produce the first scientific publications of the project and disseminate its results.

Three MASE publications related to isolation of anaerobic microorganisms in analogue environments, mineralisation and preservation of microorganisms from a Mars analog and stress tests affecting the survival rates of anaerobic microbes have just been published. More will come in the following months!

On 8th November, the University of Graz will host the last scientific meeting of the MASE project. During this meeting we will review the whole set of MASE activities during these almost four years, evaluate the progress of ongoing activities and discuss future opportunities to harness the outcomes of the project. The development of provisions to ensure that early career researchers continue to be nurtured is fundamental to move forward the European astrobiology community and the MASE Consortium will work on this direction.

The MASE team will stay committed to the astrobiology community and discussions on potential collaborations are already planned and will continue beyond the project's lifetime.

Phil. Charles Cockell
MASE Coordinator

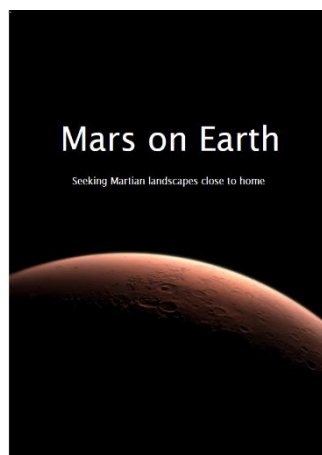
> MASE in EARA 2017

Last month, eight members of the MASE consortium attended the meeting of the European Astrobiology Network Association in Aarhus delivering a total of 4 oral presentations and 2 poster communications.

The enthusiasm and interest expressed by our European and international colleagues demonstrated one more time, that the MASE project is relevant and lead to many interactions and collaborations. Thanks to all our colleagues in Denmark for a great conference!

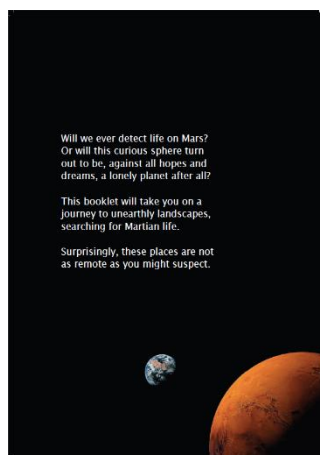


MASE newsletters



Mars on Earth

Seeking Martian landscapes close to home



Will we ever detect life on Mars?
Or will this curious sphere turn out to be, against all hopes and dreams, a lonely planet after all?

This booklet will take you on a journey to unearthly landscapes, searching for Martian life.

Surprisingly, these places are not as remote as you might suspect.

MASE outreach booklet