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ABOUT COST ACTION SAGA (CA17131)

The Soil Science and Archaeo-Geophysics Alliance is an interdisciplinary network of scientists that aims to develop, promote and facilitate scientific activities that integrates archaeo-geophysics and soil science with the overall goal of maximising interpretation of proxy data for archaeological investigations. SAGA's network and related activities are funded by the European Cooperation in Science and Technology (COST).

Visit our website: <https://www.saga-cost.eu/>

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COST is supported by the EC Horizon 2020 Framework

EDITOR'S ADDRESS



*Dr Agnese Kukela
Researcher, University of Latvia
COST Action SAGA Science &
Communications Manager*

Dear reader

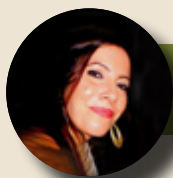
I am glad to introduce you the second issue of SAGA newsletter. As usual, we are giving an update on the progress of our Working Groups (WGs), our new projects and scientific publications. You will also find a warm greeting words from our Chair, Dr. Carmen Cuenca-Garcia and get acquainted with two people behind the Action. In this issue we have given the floor to Dr. Apostolos Sarris, SAGA's Vice-Chair from the Foundation for Research and Technology – Hellas, Greece and Dr. Hana Grison from the Institute of Geophysics of the Czech Academy of Science, Czech Republic. In this newsletter you will also find some useful links to the conferences which are online, physical presence or both open for registration until Spring 2021.

We sincerely hope you will enjoy reading this newsletter as much we enjoyed making it, and that you find it informative and entertaining.

Enjoy and stay healthy!

EDITORIAL BOARD & COLLABORATORS

[Agnese Kukela](#), [Carmen Cuenca-Garcia](#), [Sebastiano D'Amico](#), [Philippe De Smedt](#), [Hana Grison](#), [Jan Horák](#), [Neli Jordanova](#), [Apostolos Sarris](#), [Simone Spassov](#), [Mercedes Solla](#) & [Clare Wilson](#).



AN UPDATE FROM THE CHAIR

Dear Colleagues,

After a 2019 thriving with SAGA activities, and an indescribable 2020, we have all adapted, or still in process, to the new normality to continue with our lives. International networking and collaboration, which is what we do from any COST Action, has drastically changed and the virtual solutions we are all using are here to remain, by necessity, but also to provide new hybrid alternatives to make our activities more sustainable at many levels.

As you can see in the images on the right, our current group photos look very different from those of 2019 but, beyond my own nostalgia for face-to-face moments, I would also say that these, very often home-based, virtual meetings have allowed us to enjoy unique moments with colleagues 'beyond-the agenda' by opening wee windows into our homes.

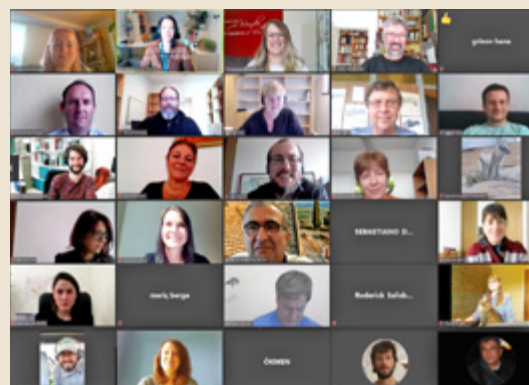
In any case, from SAGA we have kept working, and each little help has been much appreciated. In the last months we have been focusing efforts on the SAGA database and, slowly, we are progressing. We had to refine some sections but soon a general call will again ask members to feed the database. As you may remember, our Action went through evaluation (Second Progress Review) and the quality and quantity of the implemented activities were regarded as Very Good. So, well done everybody! 😊

After a lot of discussions within the Core Group and two voting consultations to the Management Committee (MC), we decided to open a new call for Short Term Scientific Missions (STSM) which will remain open until 1 October 2021. Taking into account the acceleration in vaccinations in several countries, we wanted to have this tool ready for colleagues. On this note, please remember that our fantastic STMS coordinator, Kayt Armstrong, has been temporarily substituted by our equally great colleague Elina Aidona. Any queries about STSMs - please refer them to Elina for the time being.

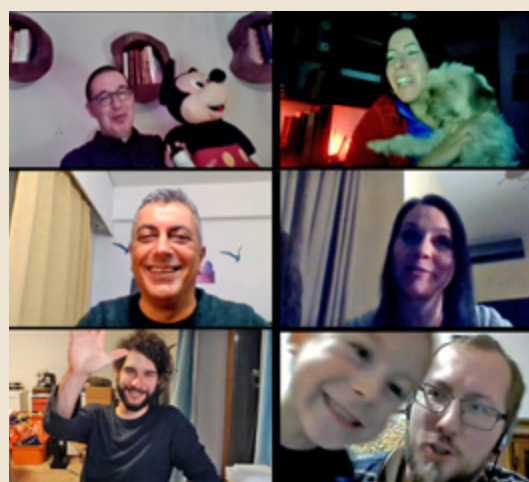
To finish, just a reminder on the availability of our Open Access Publication Grants. These are to cover article processing charges (APC) for open access of collaborative publications co-authored by SAGA members (from at least 3 different participating COST countries) in order to disseminate research outcomes performed by our participants. All details on the requirements to apply for these grants were described in the minutes of our last MC Meeting 5 (and here in page 3).

And that's all from me, I hope you will find of interest the other sections of this new newsletter and to see you all quite soon!

Salud!



Management Committee Meeting 4 (1 October 2020).



Core Group Meeting 4 (7 December 2020).



Management Committee Meeting 5 (22 April 2021).

HIGHLIGHTS OF THE WORKING GROUPS PROGRESS

WG1

*Knowledge
Creation,
Exchange &
Development*

-by Dr Clare Wilson



The last few months have been busy for everyone, but work on the WG1 databases has been progressing well. Thanks to everyone in WG1 who has already added what they consider to be the seminal publications in their area that are relevant to SAGA to the Zotero database, this will be incorporated into the SAGA website and opened to SAGA members, but in the meantime if any more WG1 members would like to add publications please do. The databases for environmental information, funding sources, projects and project ideas are also taking shape and again thank you to those who have already contributed information. Hopefully these will be opened to everyone soon and will become a resource to help people find funding and collaborators to work together on applications for new SAGA projects!

WG2

*Integrated Field
Methods
& Testing*

-by Dr Philippe De Smedt



Despite the effects of the events of the past year, new actions for WG2 have been initiated and it has continued working on improving the database structure and getting it out in the open. Once this has been finalized, all members will be able to add information on field methods, equipment and test sites. In addition, several research projects have been initiated, for which – as restrictions slowly ease down in some parts of the world – fieldwork can gradually begin.

WG3

*Data Integration,
Visualisation &
Parameterisation*

-by Dr Jan Horák



WG 3 was in the last grant period negatively influenced by covid pandemic. We did not perform STSM missions which were planned to follow our activities from previous grant period. Therefore, we focused on work which can be easily done online. Our colleagues Michel Dabas, Armin Schmidt and Apostolos Sarris prepared journal publication on the problematic of noise recognition in the data. We are also preparing the session for CAA conference on Cyprus in 2021. From other activities we can mention continuing work on data integration (lead by Julien Thiesson) or on compositional data analysis in geophysics (lead by Jan Horák). Last months were also used for preparing entries for the SAGA database, which data population is now in process. Although we can still work during the pandemics, we hopefully look to the brighter future.

WG4

*Training,
Dissemination
& Outreach*

-by Dr Sebastiano D'Amico



In general, WG4 aims at incorporating soil science and geophysics during excavation planning phase and widely contributes to foster the interaction with curators, field archaeologists etc. Furthermore, it promotes the benefits of soil analytical techniques for generating auxiliary data. It collaborates with the other WGs and SAGA participants in involving Practical training of young researchers and professionals with the main goal of developing specialists' skills and cross-disciplinary capacity. Lately, the main activity of the WG4 was to coordinate and realize a complex database repository (input was received from the work carried by the other WGs) to gather information across Europe about any available laboratory and portable equipment, test sites etc. It also collects information about potential collaboration, project ideas and sources of funding. For the present, the database is available just for SAGA members, but soon it will be open to the wider scientific community.

MEET OUR MEMBERS



Dr Apostolos Sarris

SAGA's Vice-Chair

(<http://www.ucy.ac.cy/geoinfolab/research-team>)

Apostolos started his studies at Boston University from where he obtained his B.A. in Astronomy & Physics (1985) and M.A. in Physics (1988). He then moved at the University of Nebraska-Lincoln to obtain his M.Sc. (1990) and a Ph.D. in Physics/Geophysics (1992) under the supervision of prof. John Weymouth. After coming back to Greece he established (1996) the Laboratory of Geophysical-Satellite Remote Sensing and Archaeo-environment (GeoSat ReSeArch Lab) at the Foundation for Research and Technology. In 2019 he obtained the post of Professor of the "Sylvia Ioannou" Chair on Digital Humanities at the Archaeological Research Unit of Dept. of History and Archaeology of the University of Cyprus.

What inspired you to become a researcher?

Sometimes inspiration is built gradually. You need to reach at a certain level of education to understand that knowledge is not static, but in contrast is evolving fast and there are more and more frontiers that open waiting to be explored. This unrest and continuous need of knowledge are the fundamental bricks for someone to continue in research. The real question though is not what inspires someone to become a researcher, but how passionate and imaginative they are to carry out good research, teach others, share their knowledge, be creative, and so on.



What is your favourite aspect of your research?

There are various topics that are addressed though the research I am contacting. In all cases however, it is so exciting to deal with the unknown. You have to feel how excited it is when the plans of the subsurface architecture of a Classical-Roman or Neolithic settlement are revealed though geophysical surveys; when you are able to recognize buried antiquities though satellite images; when you model the settlement patterns of the past though GIS spatial analysis; when you try to address difficult questions, which are dealing with the risk management of archaeological sites, the mapping of historical landscapes, the monitoring of ancient monuments, etc.



Your most important or most surprising scientific finding?

It is not possible to evaluate the scientific findings in terms of importance or surprise. Each one of our findings has a specific impact in research (not only archaeological research) and can change or modify the way we are thinking. This was made possible for example with the IGEAN (Innovative geophysical approaches for the study of early agricultural villages of Neolithic Thessaly) project that we had the last few years, which made possible to use a wide spectrum of techniques for the study of a large number of Neolithic settlements in Thessaly. It was the first time we have so much information about the specific period in the area and the results have definitely changed the way we conceive the Neolithic landscape in the region. And surprise is always expected when you are doing research. This is the most exciting aspect of doing it!



How did you become involved in our Action?

The main actors behind the scene were Carmen Cuenca-García (SAGA's Chair), Kayt Armstrong and Ian Moffat. While they were postdoc researchers at our GeoSat Research Lab, they came up with the idea of organizing the 1st ISSGAP (Interactions be-

Apostolos undertaking geophysical surveys at different Neolithic tellsites in the region of Thessaly as part of the IGEAN project.

tween Soil Science and Geophysics in Archaeological Prospection) Workshop in 2015. Obviously, I was enthusiastic of their initiative and I backed up their effort. The attendees of the workshop decided to move further with the SAGA-COST Action proposal. The draft of it was prepared during an intensive meeting we had at Rethymno, Crete in the summer of 2017. The momentum of all the participants of the proposal made it possible to have SAGA today and the opportunity to work all together. It is obvious that I could not be absent from such an enthusiastic group!

What are your future scientific plans?

After 24 years since the establishment of the Lab in Crete, my current assignment at the University of Cyprus gives me another challenge: First to establish another center of reference/excellence (<http://ucy.ac.cy/geoinfolab/>) that will be devoted to Remote Sensing in Archaeology and provide tools for exercising geophysical prospection, satellite remote sensing and GIS spatial analysis. Second, to create a new MS/PhD graduate program on GeoInformatics in Digital Humanities so that we can start to educate and train the new generation with the tools that shall need in the future. Hopefully, the program will be ready to accept students by September 2021.

What you like to do when you aren't working on research?

Watching the sea with a glass of wine, listening music (especially when my son plays his guitar), watching films, being out with friends, reading, and travelling take the rest of my time. It is important to share these small moments of free time with friends!



Apostolos during the [COST Action SAGA Meeting 2](#) organised by him and Nikos Paadopoulos in Rethymno (Crete, Greece) in March 2019. Photo by Keanthis Simyrdanis.



Dr Hana Grison

SAGA's MC Member (Czech Republic)

<https://www.ig.cas.cz/en/contact/staff/hana-grison/>

Hana Grison (born Fialova) obtained her Ph.D. degree in 2005 at the Department of Applied Ecology, Faculty of Civil Engineering, Czech Technical University, Prague. During her PhD study she completed two fellowships in France - at the laboratory LGIT (CNRS/UJF), dept. of Geochemistry of the Environment in Grenoble, and at the laboratory CEREGE, dept. of Geophysics, University Aix-Marseilles III. Currently she leads a group of Environmental and Applied Geophysics at the Institute of Geophysics of the Czech Academy of Sciences in Prague. She connects methods of environmental magnetism with traditional geophysical prospection methods. It is a novel approach based on integration of soil magnetic characteristics in order to reduce the ambiguity in interpretation of geophysical data sets used in archaeological prospection. Her research activities bring together archaeo-geophysics and soil scientists with the overall goal of maximising interpretation of proxy data for archaeological purposes.

What inspired you to become a researcher?

To be honest, I never planned to be a researcher. Since childhood, I wanted to design bridges like the Golden Gate. In the master thesis I focused on fire resistance of wooden structures. By chance, I was asked to do a PhD in scope of 5thFP EU R&D Project MAGPROX: Screening and PROXies. After defending thesis entitled "Magnetic discrimination between lithogenic and athropogenic minerals in soils" I decided to improve the knowledge on magnetic minerals produced by pedogenesis. Therefore, I submitted a grant proposal "Determination and characterization of ultra-fine superparamagnetic particles in soils" and I obtained 3 years funding of the Grant Agency of the Czech Republic. It was not easy to change my professional life from civil engineering to Earth science. Finally, I don't regret it, because it's a very diverse job



Hana at the court of the Institute of Geophysics (Prague) during the hands-on session in active seismics of the [COST Action SAGA Meeting 3](#). She was the Local Organiser of this four days event which took place between 30 September and 3 October 2019.

- field sampling, subsequent laboratory analyses, data processing and evaluation in the office. I am never bored.

What is your favourite aspect of your research?

For me, research is a creation of mosaic which can be constantly improved. I'm involved for almost 20 years. Time flexibility is also a very important aspect, especially because I have two daughters, 7 and 11 years old. Now I put my energy into establishing an interdisciplinary network, organizing a co-operation among geophysicists, archaeologists and soil scientists, including geochemists.

Your most important or most surprising scientific finding?

Significant environmental questions are pursued via the rock-magnetic approach. It can be applied to different purposes to investigate e.g. past climate, particulate pollution, sediment and loss transport etc. Frequency-dependent magnetic susceptibility is governed by the presence of ultrafine Fe-oxides, and can be used as an index of increased pedogenesis. Unfortunately, in highly magnetic soils it is limited due to so-called "masking effect" of coarse-grained magnetic fraction. This is very serious problem and almost no one deals with it. I was really happy to find a way to quantify magnetic contributions even in strongly magnetic areas.

How did you become involved in our Action?

My Greek colleague Elina Aidona sent me an alert to take the following e-mail seriously, that it will not be a spam. I obtained an invitation from Carmen Cuenca-García to participate in the COST Action SAGA initial network of proposers. After a few months of silence, I received the message that the project had been approved. Then I realized,

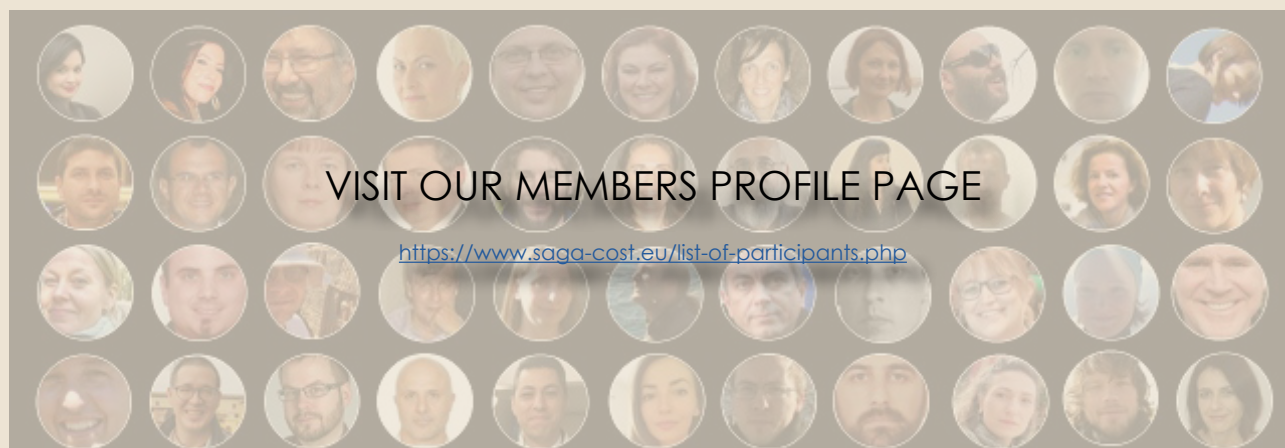
what a huge potential project has, when I was specifying my contribution to COST Action SAGA in a proposal. It was a very lucky day for me.

What are your future scientific plans?

I'd like to be further involved in archaeological projects. I plan to investigate the relationship between the magnetic and chemical properties of anthropogenic soils for archaeological purposes. In more technical point of view, iron-bearing ferrimagnetic minerals in soils provide a powerful auxiliary method for studying the genesis and evolution of soils in conventional geochemistry.



Sampling at the Hillfort Královice, November 2020.
Photo by M. Hejman.



NEW PROJECTS



"Interaction between Soil Science & Archaeogeophysics – Upgrading Geophysical Prospection Methods"

PI Neli Jordanova 

PROJECT REF KP 06-COST/2

FUNDING BODY Bulgarian National Science Fund – national co-financing to Palaeomagnetic Laboratory at National Institute of Geophysics, Geodesy and Geography – Bulgarian Academy of Sciences for participation in COST Action SAGA CA17131.

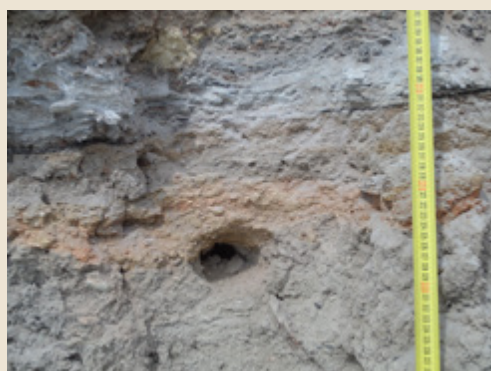
DURATION 2019-2021

AIM Contribute to SAGA objectives through research on the following major topics:

- Exploring mineral magnetic signature of recent soils and paleosoils in relation to paleoenvironmental conditions .
- Investigation of magnetic properties of sediments/remains from stratigraphic profiles of multileveled archaeological sites (in collaboration with archaeologists from National Archaeological Institute with Museum (Bulg. Acad. Sci.).
- Determination of equivalent (palaeo)firing temperatures of ceramic artefacts from various archaeological sites from Bulgaria.
- Magnetic investigations of archaeological remains from house destructions for elucidation of ancient firing conditions.



Sampling stratigraphic profile from Chalcolithic multi-level site Petko Karavelovo (North Bulgaria). Multiple burnt clay layers exposed along the depth.



Detail from sampled stratigraphic profile from multi-level site Yunacite (southern Bulgaria). Thick ash layer and burnt clay floor revealed.



Iron age pottery fragments used for determination of equivalent ancient firing temperature using magnetic susceptibility method.



Sampling soil profile in a kaolin quarry from Central North Bulgaria. Work in the quarry in mid-August is a challenge and one needs some shadow.

NEW PROJECTS



"Application of Geophysical Approach in Archaeological Research & Prospection"

PI Hana Grison 

PROJECT REF LTC19029

FUNDING BODY The INTER-EXCELLENCE program of the Ministry of Education, Youth and Sport of the Czech Republic (MEYS).

DURATION Sep 2019 - Sep 2022

AIM Our project fulfills the aims of the COST Action SAGA, by the novel and original integration of soil magnetic characteristics in order to reduce the ambiguity in interpretation of geophysical data sets used in archaeological prospection. Our contribution enables the interdisciplinary connection of environmental magnetism and traditional geophysical prospection method.

The work is divided into four specific tasks:

- Monitoring of soil erosion at selected important archaeological sites using different magnetic methods and study of soil changes.
- Magnetic characterisation of anthropogenic signal (pollution) in soils due to medieval and recent metallurgical activities in the Moravian Carst environment.
- Development of effective geophysical prospection method based on the magnetic properties of soils and rocks.
- Demonstrating and verifying the use of archaeomagnetic dating methods within the Czech Republic.



Soil profile at early medieval hillfort Prague – Vinoř, (September 2020). The colour of the soil reflects the mineralogical changes caused by the human activities. Magnetic methods are suitable for sensitive detection of such changes and, therefore, very suitable for the reconstruction of what happened in the past. Photo by Hana Grison.



Magnetic susceptibility can be measured in situ using the SM 30 pocket meter.



Soil sampling at the hillfort Vinoř (10th to 12th century), Czechia, August 2020. Identification of the magnetic and geochemical properties of soils to detect past human activities. Photo by Hana Grison.



Highly magnetic basement is suitable for ERT measurements. Detection of the Early Bronze Age water tank at the hillfort Hradišany, Czechia, May 2020. Photo by T. Junek.

NEW PROJECTS



"Geochemical insight into non-destructive archaeological research"

PI Jan Horák



PROJECT REF LTC19016

FUNDING BODY Czech republic – Ministry of Education

DURATION 2019 - 2022

AIM The project is generally focused on two main goals: introducing the geochemical methods and data interpretation into geophysical research, and the data integration and combined processing (as geophysical and geochemical data are of various character). Six main aims will be followed in the project:

1. Data types synthesis (synthesis of information about variety of data types processed in geophysical and geochemical research as background for further work).
2. Identification of right analytical processes (some data has to be processed only in some particular manner).
3. The relationships between measured variables and soil conditions (geophysics needs to answer some of these questions in order to do better data modelling).
4. Methodics of standardised processing (production of manuals and guidelines of how to rightly process the data and visualise them).
5. Software solution (standardised processing should be automatized through some form of scripts like R Statistical environment).
6. Workshop / training school – the project should be concluded by training school for specialists and also non-specialists – not only archaeologists or archaeo-geophysicists.



Necrosols are also a topic of interest on site in Cirkvice, Czechia.



Jan Horák about to beat the probe at Chotěbuz hillfort, Czechia.



COST Action SAGA member, Martin Janovský, prepares to measure the sample at Hradištany hillfort, Czechia.

NEW JOURNAL PUBLICATIONS BY SAGA MEMBERS (2020-2021)



Open Access Publication Grants funded by COST Action SAGA can only be used to disseminate research outcomes performed by the Action Participants and that are co-authored by Action Participants representing at least 3 different participating COST Full Members / COST Cooperating Members. According to the COST Vademecum:

- Action Participant is any person being an Action MC member, an Action MC substitute, an Action MC Observer, a Working Group member or an ad-hoc participant.
- COST Full Members are the 38 countries that joined the COST Programme: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Republic of Moldova, Montenegro, The Netherlands, The Republic of North Macedonia, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and UK.

- The COST Cooperating Member is Israel.
- To ensure high quality of the publications, the paper must be subjected to a full peer review, i.e. only peer reviewed publications will be considered for funding within this grant. Journals have to be situated in the first three quartiles (Q1-Q3). Journals in the last quartile Q4 or not contained in the SCOPUS should be assessed by the COST Scientific Officer.
- Papers must provide an acknowledgement of COST and do not require specific branding: "This article is based upon work from COST Action SAGA CA17131, supported by COST (European Cooperation in Science and Technology)" or similar (check <https://www.saga-cost.eu/>

[saga-examples.php](https://www.saga-cost.eu/)).

- All publications generated from work performed by Action Participants must include, display and respect the COST corporate identity adhering to the brand guidelines detailed in the COST brand book, available for download at: <https://www.cost.eu/visual-identity> (COST Vademecum, Section 10, page 39).
- The funds will not be provided before the final acceptance for publication.
- To apply please contact in advance carmen.cuenca-garcia@ntnu.no. This is an ongoing call that is only constrained by the budget of the COST Action SAGA.



ITC CONFERENCE GRANTS -by Dr Simo Spassov

Below there are links to conferences which are online, physical presence or both until spring 2021.



[Computer Applications & Quantitative Methods in Archaeology](#)
[CAA2021, Limassol](#)

14-18 Jun 2021



[27th Annual Meeting of the European Association of Archaeologists: Widening Horizons](#)

6-11 Sept 2021



[14th International Conference of Archaeological Prospection](#)
[ICAP 2021 - Virtual Conference](#)

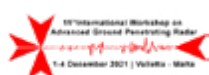
8-10 Sep 2021



[13th International Conference on](#)
[Computational Collective Intelligence](#)

(this is a very special one on artificial intelligence, thus for those who are working in this field)

29 Sept / 1 Oct 2021



[11th International Workshop on](#)
[Advanced Ground Penetrating Radar, Malta](#)

1-4 Dec 2021



American Geophysical Union
AGU Fall Meeting, New Orleans

13-17 Dec 2021

<https://www.agu.org/Fall-Meeting>



[9th World](#)
[Archaeological](#)
[Congress](#)
[WAC-9-Prague](#)

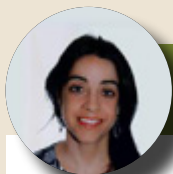
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*Remember that any SAGA member that contributes to a SAGA conference session can get support for travelling, food and board to attend the SAGA event (1 day + travelling time as usual for other meetings).

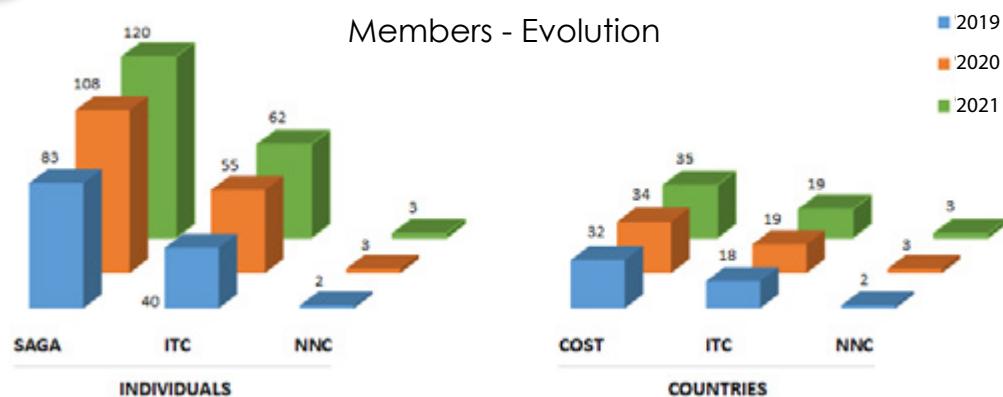
3-8 July 2022



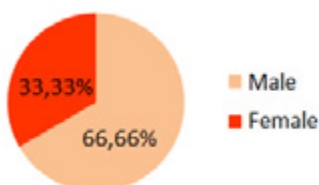


COST POLICY FIGURES -by Dr Mercedes Solla

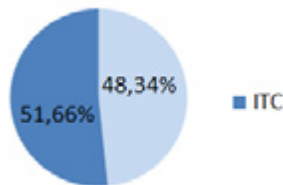
Members - Evolution



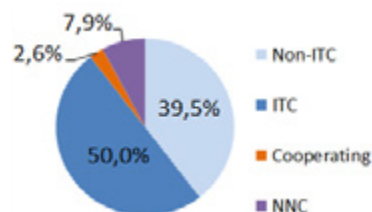
Individuals: Gender-Balance



Individuals: ITC

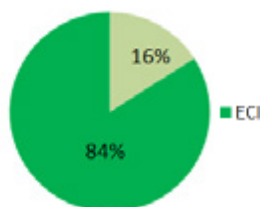
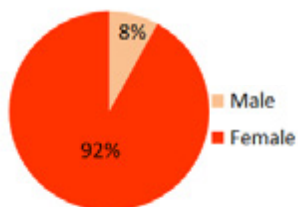


Countries: inclusiveness

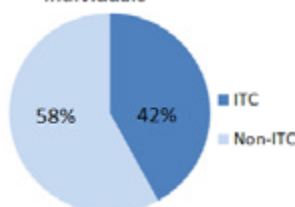


Participants of the Training School 2

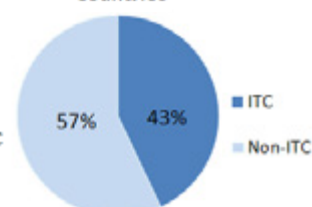
"Digital Soil Geochemistry Mineralogy, Isotope & Moisture Characterisation"



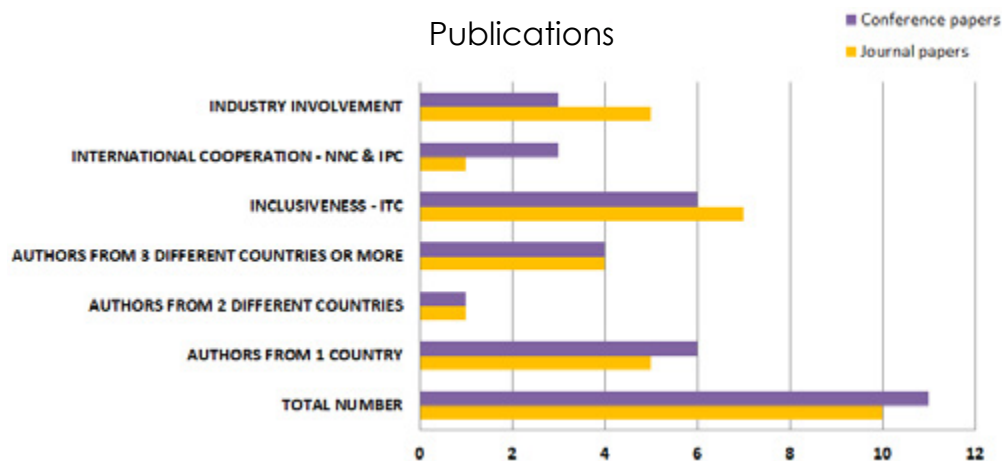
Individuals



Countries



Publications





This publication is based upon work from COST Action SAGA (CA17131), supported by COST (European Cooperation in Science and Technology). COST is a funding agency for research and innovation networks. COST Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. COST is supported by the EU Framework Programme Horizon 2020. The authors acknowledge the financial support provided by COST.

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COST Action SAGA logo by Åshild Viken