

EUROPEAN RESEARCH INFRASTRUCTURE FOR ANALYSIS AND EXPERIMENTATION ON ECOSYSTEMS



Newsletter 4

ISSUE FOUR

Dear Reader,

As we move into autumn, AnaEE continues to move along and in the right direction - gaining momentum with the launch, now, of our Call for Expression of Interest, which aims to identify sites and platforms across Europe that will be part of AnaEE.

In addition, AnaEE is contributing to a renaissance of environmental research across Europe, through its strong involvement in "Environmental Research Infrastructures providing shared solutions for science and society", or ENVRI^{PLUS}. This proposal was submitted on September 2nd, and led initially by the University of Helsinki, and subsequently by ICOS (the Integrated Carbon Observation System) when this key European infrastructure officially becomes an ERIC (European Research Infrastructure Consortium).

Furthermore, AnaEE is heavily involved in the Horizon 2020 Call just submitted on 16 September on biodiversity and ecosystem services.

The proposal is largely based on sites already identified in ExpeER and which may potentially become AnaEE sites. The project aims to establish an end to end solution for monitoring biodiversity and ecosystem services provided by European protected areas.

In addition, we have also now finalised a Memorandum of Understanding with NEON (National Ecological Observatory Network) in the United States, and are working on an MoU with Australia's TERN (Terrestrial Ecosystem Research Network).

I also spoke at the "ICOS-NEON Greenhouse Gas Data Training

Workshop" on 7-13 September 2014.

As well as that, I can't obviously forget that AnaEE will be holding its annual meeting and stakeholder meeting in Antwerp, Belgium, from 13-15 October.

I hope to see you there.

Kind regards,

Abad Chabbi
AnaEE Coordinator



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BUILDING COOPERATION BETWEEN INFRASTRUCTURES

*Dr. Abad Chabbi, Coordinator, and Evan O'Connell,
Communication/Lobbying Officer*



By now, you are no doubt aware of AnaEE.

As Europe's first pan-European integrated, distributed research infrastructure for analysis and experimentation on ecosystems, AnaEE strongly supports scientists in their analysis, assessment and forecasting of the impact of climate and other global changes on the services that ecosystems provide to society.

AnaEE also contributes to the development of solutions to the challenges of food security and environmental sustainability - with, of course, the additional aim of stimulating the growth of a vibrant bioeconomy for Europe and the world.

Building Cooperation

You may also be aware that there are other related European research infrastructures either existing or under preparation and construction in the field of environmental science. These include ICOS (Integrated Carbon Observation System), LifeWatch (European e-



Science infrastructure for biodiversity and ecosystem research) and many others.

Yet in this time of tight budgets both nationally and on a European level, we cannot afford to scatter resources too widely.

This is why the European Commission has encouraged growing cooperation between European-level research infrastructures.

AnaEE, along with ICOS, LifeWatch and others, is ready to take up this challenge. AnaEE realises that it alone cannot face all of the key challenges - we need to cooperate with all relevant stakeholders.

This means ensuring we have not only informal links with other infrastructures like ICOS, LifeWatch, EMBRC, IAGOS and many others. It also means more formal cooperation that will allow us to build common tools and projects together.

This is why many leading research infrastructure projects from a wide range of fields have now come together.

ENVRI^{PLUS}

AnaEE has joined forces with other infrastructures to form a new consortium, "Environmental Research Infrastructures providing shared solutions for science and society", or ENVRI^{PLUS}. This new cluster, along with other partnerships, will help the entire research community achieve its goals of using excellent sciences to respond to global challenges.

The objective of ENVRI^{PLUS} is to provide common solutions to shared challenges for European Environmental and Earth System Research Infrastructures (RIs) in their efforts to deliver new services for science and society.

To reach this overall goal, ENVRI^{PLUS} brings together the current environmental and related research infrastructures on the roadmap of the European Strategy Forum on Research Infrastructures (ESFRI), as well as leading 13 projects, key developing RI networks and specific technical specialist partners to build common synergic solutions for pressing issues in RI construction and implementation.

AnaEE will take a strong leadership role in this significant project, leading several work packages and also taking responsibility for a number of tasks.

ENVRI^{PLUS} will build ties between all types of environmental and earth-science research infrastructures. The cluster will focus on cross-

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cutting projects and issues that take into account (for example) processes that affect oceans, terrestrial ecosystems and the atmosphere.

Shared Projects

The new cluster aims to improve research infrastructures' abilities to observe the Earth System, particularly in developing and testing new sensor technologies, harmonizing observation methodologies and developing methods to overcome common problems associated with distributed remote observation networks.

It will also generate solutions for information technology and data related challenges in data and service discovery and use, workflow documentation, data citations methodologies, service virtualization, and user characterization and interaction.

In addition, it will strive to develop harmonised policies for access, including access services for multidisciplinary users.

Another key priority is investigating the interactions between research and society. This means working to find common approaches to key economic and societal challenges.

It will also work to encourage the cross-fertilisation and knowledge transfer of new technologies, best practices, approaches and policies of research infrastructures by generating training material for research and site personnel to use new observational, technological and computational tools and facilitate knowledge transfer via a staff exchange program.

At the same time, we also need to create a communication and

cooperation framework to coordinate activities of research infrastructures towards common strategic development, improved user interaction and interdisciplinary products and services.

Working Together

We work in separate fields and different disciplines. Yet many of the environmental challenges we face and the societal needs we respond to are the same.

Research infrastructures in the domains of atmosphere, biosphere, solid earth and marine science know that they cannot respond to these challenges on their own.

Yet without the necessary investment and effort to build a relevant and useful framework for cooperation, we will carry on facing a fractured research landscape (and indeed limited research funding streams), continue providing narrow and fixed services, with fractured end products.

It is cooperation and the injection of technological, human and cultural capital that will allow us to build the holistic understanding that we need of our shared challenges.

Through ENVRI^{PLUS}, we hope to build a more integrated understanding of how close our research really is, provide flexible services to our users, provide answers to society's questions and needs, and respond to the grand challenges that we all universally face as scientists and research professionals.

It is only then that we can truly unlock the power of the work we all do.

NEWS UK

AnaEE Eol Call

In the UK, BBSRC partners have started consultations with NERC, DEFRA and the Scottish Government. This autumn, there will be a visit to the Global Food Security Programme bringing 22 funders around the table, including the Environment Agency.

Agri-tech Catalyst

As part of the UK Government's strategy for agricultural technologies, The Agri-Tech Catalyst, in which BBSRC is a major investor, has awarded 15 agricultural innovation projects a share of £18M to help accelerate agricultural innovation and their commercial viability. They are all led by UK companies and span three key areas of the agriculture sector – crops, livestock and aquaculture. The Agri-Tech Catalyst, run by BBSRC and the Technology Strategy Board, forms part of the UK's Industrial Strategy for Agriculture.

Sustainable Agriculture and Food Innovation Platform

The Sustainable Agriculture and Food Innovation Platform helps UK businesses to develop innovative technologies, production systems and supply chain solutions to increase the productivity of the agri-food sector while reducing its environmental impact. The Technology Strategy Board, together with BBSRC, Defra, and the Scottish Government, are to invest up to £16.5M in collaborative R&D projects to tackle challenges posed by crop and livestock diseases.

Sustainable Agriculture Research and Innovation Club (SARIC)

SARIC is a joint BBSRC and NERC initiative to support innovative projects that will provide solutions to key challenges affecting the efficiency, productivity and sustainability of the UK crop and livestock sectors. Approximately £10M of funding is available through the 5-year partnership between BBSRC, NERC and leading companies to address two key challenges identified by industry:

- Resilient and robust crop and livestock production systems;
- Predictive capability and modelling for new technologies, tools, products and services.

BUILDING AnaEE – ONGOING PROGRESS

AnaEE ANNUAL MEETING AND STAKEHOLDER MEETING: ANTWERP, BELGIUM, 13-15 OCTOBER 2014

The 2nd AnaEE annual meeting will be held on 13-15 October 2014 (Monday-Wednesday) at the University of Antwerp (address: Hof van Liere, Prinsstraat 13, 2000 Antwerpen, Belgium).

Our annual meeting brings together the consortium both to take stock of achievements and challenges and also to plan work for the coming year.

AnaEE's stakeholder meeting will be held in Antwerp on Tuesday 14 October 2014.

The day aims to bring together keynote speakers from some of the most important players in the world of research and policy to further deepen understanding among key stakeholders of the need for cooperation and coordination on scientific and economic challenges to achieve scientific and societal goals, while also allowing ample time for long and deep debate on key issues.

Each thematic session will therefore consist of one or two 15-minute presentations and 45 minutes of guided discussion on the issues at hand.

We aim to focus first on the scientific and economic challenges at hand, via two morning sessions on "Food security, climate change and biodiversity – working together

to respond to the grand challenges" and "The strong ties between the environment and the economy" which to date remain unexplored.

These would feature speakers including John Porter (University of Copenhagen) and Reinhart Ceulemans (University of Antwerp).

The afternoon will then see two sessions on policy and cooperation: "European governance and research infrastructures: strategy, challenges, evolution" (featuring former ESFRI chair John Wood) and "Thinking internationally: how can research infrastructures build global ties and what are the barriers in achieving this goal?" (featuring Clare McLaughlin, Australian Mission to the EU).

In addition, there will be a Workshop on Data and Quality co-organised by our partners at Rothamsted Research in the UK and the Fondazione Edmund Mach (FEM) / Consiglio Nazionale delle Ricerche (CNR), taking place in the context of the annual meeting on 15 October 2014 from 9am, but open to the public at large. It will feature prominent speakers from academia and beyond.

We hope to see all relevant stakeholders present and share our thoughts with you - as well as getting your input on how AnaEE is evolving.

NEWS *Italy*

AnaEE Italy is also now moving forward - the Italian *Consiglio Nazionale delle Ricerche* (National Research Council) and the Fondazione Edmund Mach are working together to organise an Italian response to AnaEE's Call for Expression of Interest.

This includes extensive consultation with the research community and all relevant public authorities.

NEWS *Belgium*

Belgium being a federal country, our partner there - the University of Antwerp - has been dealing with both federal authorities and with regional bodies in both Flanders and Wallonia.

In Flanders and in Wallonia, work is ongoing to secure funding and identify platforms that will be part of AnaEE Belgium - this includes the ecotron facilities under development in Hasselt and Gembloux.

On a federal level, consultations are underway with the Belgian Science Policy Office (BELSPO) to examine whether the federal government can and will also be involved in some way.

NEWS *Finland*

In Finland, contact has been made with stakeholders and funding agencies. There is a great level of enthusiasm to make AnaEE Finland a reality. There is now a website explaining the basic details and timeline of the Finnish portion of the project: <http://blogs.helsinki.fi/anaee-suomi/>

BUILDING AnaEE – ONGOING PROGRESS

AnaEE's CALL FOR EXPRESSION OF INTEREST: CONTINUING WORK ON BUILDING OUR EUROPEAN INFRASTRUCTURE



Following extensive work involving all of the consortium over the spring and early summer, AnaEE has now officially invited all European countries to take part in a Call for Expression of Interest that aims to bring together the components of the AnaEE infrastructure.

This first pan European experimental research infrastructure on managed and unmanaged terrestrial and aquatic ecosystems will provide access to a distributed and coordinated set of experimental platforms covering the full range of Europe's ecosystems and climate zones as well as state-of-the-art analytical and modelling platforms to support experimental work.

This Call aims to identify platforms that could be part of AnaEE either in their current form or following an upgrade, as well as planned new platforms. These platforms will have to meet a certain number of criteria.

You will be able to find all relevant information by contact-ing AnaEE's Project Office or your National Focal Point. In countries where

National Focal Points have already been nominated, you will soon be hearing from this person and will receive more information directly on how the Call applies to you and how you, as a key stakeholder, can work with us to ensure AnaEE is a success.

Some focal points have now begun communicating to their national scientific communities - others will be doing it in the weeks to come.

The call has defined a number of criteria that will decide which sites can and will become part of AnaEE. However, many will no doubt want to be part of AnaEE but will need upgrades or improvements to fit all of these criteria.

To help national governments make decisions on the most useful sites from a scientific and cost-benefit point of view, we have developed the building blocks of a multiple-criteria decision analysis (MCDA) model.

This model will allow us to analyse proposed upgrades and identify optimal projects hand in hand with national funding agencies.

Once we have all of the responses from research bodies, the AnaEE

Steering Committee will judge which sites already meet the criteria, which could fit following upgrades, which lack sufficient assurances on long-term funding, and any other issues.

This will be the beginning of an ongoing discussion lasting 6-8 months between the AnaEE Steering Committee, national focal points and national funding bodies.

Together, they will try to reconcile funding needs and resources, national priorities, the needs of national and European researchers, as well as the overall European vision that has been set out throughout the preparatory phase of the AnaEE project.

In the context of the People's Climate March around the world in September 2014, the recent U.N. Climate Summit of world leaders, and increasing understanding of the need for closer ties between science and policy, building an inclusive but world-class international re-search infrastructure is essential.

This is why we need your input now more than ever.

UPCOMING DEVELOPMENTS AND WHAT TO EXPECT FROM ANAEE

ANAEE COORDINATOR TO PRESENT ON "SOIL – AN ESSENTIAL RESOURCE", IN FRAUENCHIEMSEE, BAVARIA, 16–17 APR 2015

The International Expert Group on Earth System Preservation (IESP) has invited AnaEE Coordinator Abad Chabbi to speak on "Soil – An Essential Resource" at an upcoming workshop in Frauenchiemsee, Bavaria on 16-17 April 2015.

The workshop is organised in cooperation with the Bavarian Ministry for Environment and Consumer Protection.

The areas to be covered are soil threats like erosion and land take, Global and Regional Soil Partnerships, Climate Change and Soil Management Challenges and Infrastructures for Soil Research.

Dr. Chabbi will be covering infrastructures in particular, focusing on AnaEE experimentation and the link to key soil security issues.

ANAEE COORDINATOR TO GIVE WINTER SEMINAR AT ROTHAMSTED RESEARCH, NORTH WYKE, DEVON, UK, 23 JAN 2015

AnaEE Coordinator Abad Chabbi will be giving a Winter Seminar at Rothamsted Research's North Wyke Farm site, funded by the Stapledon Memorial Trust (<http://www.stapledontrust.org.uk/welcome.htm>). Dr. Chabbi will talk about how AnaEE can contribute to integrated global environmental research.

INTERNATIONAL TERENO CONFERENCE, BONN, 29 SEP–2 OCT 2014

Abad Chabbi is invited as keynote speaker at the International TERENO-Conference in Bonn, from 29 September to 2 October 2014 (see more: http://www.tereno-conference2014.de/tereno-conference/EN/Home/home_node.html).

Dr. Chabbi will be discussing efforts made to establish infrastructures and networks for ecosystem research, focusing on 'Complementary tools for observation and experimentation on the critical zone'.

ICOS-NEON GREENHOUSE GAS DATA TRAINING WORKSHOP, HAUTE-PROVENCE, 7–13 SEP 2014

Abad Chabbi was invited to speak at this joint training workshop organised by two key research infrastructures in Europe and America.

Dr. Chabbi gave an overview of AnaEE's goals and the role of large-scale experiments in advancing ecology, climate change research and work in related fields.

NEWS *Czech Republic*

In the Czech Republic, work is underway to grow cooperation on a national level between AnaEE and ICOS (the Integrated Carbon Observation System - another key European research infrastructure project).

This will lead to the elaboration of an AnaEE Czech Republic node, either separately or conjointly with other infrastructures.

NEWS *Estonia*

Thanks to the University of Tartu and others in Estonia, there is now an Estonian national focal point for AnaEE. Building on existing resources in the Estonian Environmental Observatory, Estonia will take part in the Call for Expression of Interest.

NEWS *France*

Via the existing AnaEE France national infrastructure, the Call for Expression of Interest will be distributed this autumn to all relevant research bodies. <http://www.anaee-s.fr/>

NEWS *Turkey*

Nüzhet Dalfes of Istanbul Technical University has begun work on an online interactive training and education tool for AnaEE, focusing on improving understanding of ecosystem science, primarily targeted at the educated public and schoolteachers.

This tool will be unveiled in its *beta* version this year, and once finalised will be available online for all interested potential users.

INTERNATIONAL CONFERENCE ON EXPERIMENTATION IN ECOSYSTEM RESEARCH, PARIS, 24-25 SEP 2014

ExpeER (Experimentation in Ecosystem Research) forms the building blocks of the AnaEE distributed infrastructure by federating and structuring key existing experimental (and observational) infrastructures in ecosystem research in Europe.

ExpeER organised an International Conference on Experimentation in Ecosystem Research in a Changing World, taking place at the National Museum of Natural History (at the auditorium de la Grande Galerie de l'Evolution, 36 rue Geoffroy Saint-Hilaire) in Paris on 24-25 September 2014.

This conference focused on the following topics, with high-level keynote speakers:

- **GRAND CHALLENGES:** With the current set of Experimental Research infrastructures in ecosystem science, do we have the capacity to tackle the grand challenges of today and tomorrow?
- **IN VITRO AND IN NATURA:** How realistic are they, and how they can be better linked?
- **TECHNOLOGIES:** Which emerging technologies could enhance (or are needed for) the performance and services offered by our RIs?
- **DATA:** Towards an e-infrastructure for ecosystem research - challenges and opportunities.
- **MODELLING:** How accurate is our capacity to forecast and upscale, and what is missing? How can we communicate uncertainty? How do we strike the right balance between modelling and experiments?

Find out more on the conference website (<https://colloque6.inra.fr/expeer-conference>)!

FOR MORE
INFORMATION
ON AnaEE

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This newsletter was drafted by Evan O'Connell and Abad Chabbi (INRA).

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