

EUROPEAN RESEARCH INFRASTRUCTURE FOR ANALYSIS AND EXPERIMENTATION ON ECOSYSTEMS



Newsletter 10

ISSUE TEN

Dear Reader,

We now find ourselves six months before the end of our preparatory phase. It is an exciting time, where we can really see our efforts taking shape, step by step. We are making progress in the building of AnaEE, with decisions made on the selection criteria for the platforms which will form the core of our infrastructure: our last WP3 meeting in Florence on the 3rd and 4th of September was quite fruitful. After a first analysis of each platform, feedback has been sent to the national focal points, who are now in the process of interacting with their national platforms and analyzing their application according to our criteria. We are planning a synthesis and discussion session with all national focal points in Copenhagen at the beginning of November.

Meanwhile, planning for the next big AnaEE events is underway. We have finalized the agenda and sent

invitations to our 4th Legal, Governance and Funding meeting, which will take place in London in November. It will provide an important opportunity for us to see the investment potential in our partners. And we are planning our final AnaEE Preparatory Phase conference, scheduled in Paris in March 2016.

Alongside these events, the writing of the AnaEE business plan is now in full swing, building upon our objectives for AnaEE and our interactions with our partners, stakeholders, and European institutions such as the European Investment Bank.

In parallel to its internal processes, AnaEE is also widening its cooperation with external initiatives. We are fully committed to ENVRI Plus, a new European cluster of environmental RIs and networks with the aim to create a more integrated and inter-disciplinary

European landscape. We are supporting the FLEX initiative to observe terrestrial fluorescence via a European satellite mission. And we are building links with our colleagues in the United States, especially the Climate and Carbon Sciences Program at the Lawrence Berkeley National Laboratory (Berkeley Lab), and consolidating our cooperation with NEON and TERN.

More information is available in the newsletter and on the website; you can also follow us on LinkedIn or Facebook.



Abad Chabbi

AnaEE Coordinator

AnaEE NEWSLETTER

AnaEE NL 10 | October 2015 | www.anaee.com | 1

REPORT

AnaEE Platforms Selection Process

The last meeting of the AnaEE WP3 in Florence enabled to move forward on the selection of the future AnaEE platforms, by clarifying the objectives, setting clear criteria for all platforms, and setting up the further process with national focal points and the site owners.

AnaEE's Work Package 3 (Technical Development Plan) met on the 3rd and 4th of September in Florence to discuss the selection process for AnaEE platforms and to decide on the final selection criteria for the future AnaEE platforms: in natura, in vitro, analytical, and modeling. Some of the AnaEE focal points were also present and contributed their national points of view to the debates.

The AnaEE call for expression of interest at the beginning of the year resulted in around 180 applications from national sites. The WP3 has now carried out a first analysis of each and every platform, leading to a recommendation (level 1, level 2, or not advisable at this point). This first feedback has been sent to the national focal points along with additional questions whenever the platform application was not clear on one or several points. The focal points are charged with

contacting all the site owners, and discussing with them where their sites are at and what improvements might be necessary in order to be part of AnaEE.

Selection criteria

The Florence WP3 meeting stressed again the need for AnaEE to be constituted of state-of-the-art platforms. Excellence is the driving criterion for the selections of the future AnaEE sites (cf. article « Excellence criteria in AnaEE » on page 4).

Another main decision to come out of the meeting is the renewed importance put on climate change drivers. At least one dimension of climate change will be mandatory as a treatment for a platform to be considered. Climate change and food security will be amongst the foremost characteristics of AnaEE, and will be heavily leaned upon in our branding strategy. This does not

disregard, however, other important factors, as many factors and dimensions are represented in the responses to our call.

Finally, the option, suggested at the annual meeting in Prague last June, that AnaEE be comprised of two levels of platforms, has been agreed upon. Level 1 will mean an excellent platform which can manage two manipulated drivers, one of which at least must be related to climate change (CO₂, temperature, H₂O/hydrology, UV). Level 2 platforms will be excellent platforms with a first focus on other topics. The aim in the future will be to bring level 2 platforms to level 1, inasmuch as it is possible, and to incorporate new platforms at level 1 or 2 following their characteristics. Some sites, providing highly relevant research but for different reasons not considering or able to be level 1, may be permanent level 2 sites.

(Cont'd on page 3)

REPORT

(Cont'd from page 2)

Platform analysis

The first analysis of the individual platforms has shown some inconsistencies in the responses. Further questions have been asked to many site owners in order to clarify those. No platform has been excluded at this point: the first classification is only indicative, and a first conclusion of no level only points out that an upgrade would be needed for the platform to join AnaEE.

The platform analysis has been done following several techniques: priority matrixes from experts (climate zones, ecosystem types and drivers), which show where they think AnaEE needs to focus; and analyses and HEAT maps showing the gaps by pressure and climate zone.

The national focal points are now in the process of getting this feedback to the platform owners, engaging in discussion with them, and conducting their own analysis. In addition, experimental site owners are asked which services from the analytical platforms they would be interested in using.

National focal points will then synthesise the information they have received from the platforms as well as their own analysis, and present it to the joint WP3 and national focal points meeting scheduled in Copenhagen on November 4th and 5th.

A new cluster for environmental and earth system research infrastructures in Europe

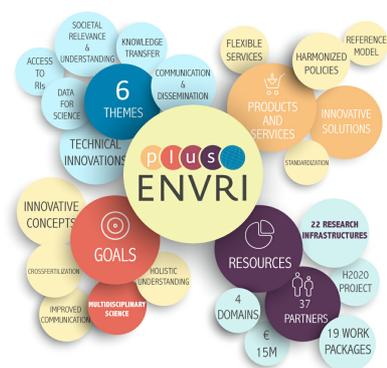
AnaEE is very involved in the new ENVRIplus cluster. ENVRIplus is a Horizon 2020 project bringing together environmental and earth system RI, projects and networks together with technical specialist partners to create a more coherent, interdisciplinary and interoperable cluster of environmental RI across Europe.

Collaboration in ENVRIplus will enable multidisciplinary Earth system science across the traditional scientific fields, which is so important in order to address today's global challenges. The cooperation will avoid the fragmentation and duplication of efforts, making the RI products and solutions easier to use with each other, improving their innovation potential and the cost/benefit ratio of the RI operations.

ENVRIPLUS is driven by 3 overarching goals: 1) favouring cross-fertilization between infrastructures, 2) implementing innovative concepts and devices across RI, and 3) facilitating research and innovation in the field of environment to an increasing number of users outside the structure. The project's website, <http://www.envriplus.eu>,

was launched just a few weeks ago, and work is steadily progressing on its various themes - technical innovations, data, access to RI, societal relevance, knowledge transfer and communication.

In this context, AnaEE, as the major research infrastructure on ecosystem experimentation in Europe, has an important role to play within the cluster. ENVRIplus is organizing a weeklong event in Prague in November (cf. the events section in this newsletter), and AnaEE will be present and involved.



Excellence criteria in AnaEE: note from the Coordinator

The AnaEE Call for Expression of Interest was launched with the aim to identify platforms that can be part of AnaEE, either in their current form or following an upgrade, as well as to identify newly planned platforms. An important focus in the selection process is on the technical excellence of the facilities. AnaEE should offer state of the art technical and flexible solutions to manipulate the various drivers and monitor the resulting impacts. Most current platforms and facilities are not matching these criteria today, but will need to implement developments, improvements and upgrades if they want to join AnaEE at the highest level. This step from today's situation to tomorrow's high level situation is what AnaEE is about and justifies our existence: AnaEE will lift the experimental services in ecosystem science to a new and much higher level.

A number of criteria are fundamental to all sites within AnaEE in order to ensure the high level of experimentation we aim for. A prerequisite for the infrastructure is of course the ability and capacity to manipulate common representative types of pressures across a European gradient of environmental conditions.

Considering the importance of land use change and the climate

changes it causes, as well as the importance of climate change in the European political arena, the level 1 platforms of AnaEE should include climate pressure manipulation alongside with intensification and land management practices as a mean to mitigate and/or to adapt to climate change, fulfil societal needs and improve ecosystem sustainability. In effect, that means testing the management's potential to mitigate and adapt to climate changes and other challenges such as the depletion of non-renewable resources (Phosphorus, petroleum...), biodiversity losses, or soil exhaustion and degradation, both for the agribusiness and for nature conservation.



A unique feature of AnaEE: European gradients

Sites can be of interest if they can maintain flexibility and open approach to respond to unforeseen changes and environmental and societal challenges. Sites that are complementary and represent well European

conditions and situations, although sites that offer a unique facility/service can also be of interest if they can fit into the main AnaEE criteria. Finally, selecting routine analytical laboratories for the analytical services should be avoided, and instead we should put more emphasis on cutting-edge analytical platforms that will stimulate new discoveries

It is important to not underestimate the commitment needed to be part of AnaEE. AnaEE is more than a collection of national research priorities.

This argues for starting with a core of excellent sites that represent climatic gradients (north-south, east-west, diagonal), and to build up the infrastructure based on existing platforms through implementing the necessary upgrades. To be able to include more platforms at the outset and enlarge our capacity to understand ecosystem functioning, it is possible that interesting sites at a lower standard can be added to complement these excellent sites across Europe. But the starting point will be the high level excellent sites.

NEWS

NEWS *UK*

Update on BBSRC activity in UK agri-ecosystems capability

A joint proposal between BBSRC and Natural Environment Research Council (NERC) institutes around integration of agri-ecosystems data is currently undergoing formal peer-review process with a decision to be made at the end of September. The project has clear benefits to AnaEE, with the potential to form part of the UK contribution. If funded, the project will last for 3 years, with joint funding from BBSRC and NERC of around €2.3m.

Resilience of the UK Food System in a Global Context

The Global Food Security (GFS) Programme will soon be announcing a new 5-year interdisciplinary programme of research to address a major food security challenge, the resilience of the UK food system in a global context. The programme has been co-designed by GFS partners including BBSRC, in partnership with a wide range of stakeholders, and will be of interest to AnaEE stakeholders. The first of two programme calls has been launched in September 2015. Each proposal must integrate biological, environmental and social sciences and can be led by any of these disciplines.

NEWS *Norway*

National AnaEE Workshop - Oslo, 2nd November 2015

Norwegian participants to the AnaEE Preparatory Phase, i.e. Bioforsk (which became NIBIO on 01/07/2015), NIVA, and the Norwegian University of Life Sciences are organizing a national AnaEE workshop in Oslo on Monday, November 2nd, 2015, open to all research institutions and stake-holders, to increase synergies in the development and use of research platforms.

NEWS *France*

First AnaEE France Day – Toulouse, 7th December, 2015

Two and a half years after being launched, the national infrastructure AnaEE France (www.anaee-s.fr) offers an operational range of services for ecosystem research. It provides experimental platforms with different kinds of aquatic and terrestrial ecosystems, different scales and different degrees of environmental control, as well as analytical platforms, shared instruments, modeling platforms and data storage and management tools. In these two years, the infrastructure has attracted more than 1100 projects, trained more than 2600 users, enabled the publishing of 330 scientific articles, and provided a framework for 25 partnerships with private companies.

The first AnaEE France Day will be taking place in Toulouse on 7th December, 2015. Its goal is to enable interaction between the AnaEE France users, stakeholders, and services providers.

RECENT EVENTS AND UPCOMING DEVELOPMENTS

- BERKELEY SEMINAR ON EUROPEAN ECOSYSTEM SCIENCE, BERKELEY, 6-11 SEPTEMBER 2015

AnaEE coordinator Abad Chabbi was invited to give a seminar during his stay in Berkeley in September 2015. Abad Chabbi spent a week in California, from September 6th to September 11th, to work with Professor Margaret S. Torn, head of the Climate and Carbon Sciences Program at the Lawrence Berkeley National Laboratory (Berkeley Lab), and her group on the development and the implementation strategy of the international soil warming experiment in the AnaEE distributed infrastructure. The goal is to achieve a generalizable understanding of soil response to global change, and to test management solutions in real world conditions. In this context, Abad Chabbi gave a seminar on “European integrated research infrastructure in ecosystem science: facing the challenge” on 10th September 2015.

- EUROPEAN SPACE AGENCY USER CONSULTATION MEETING, KRAKOW, 15-16 SEPTEMBER 2015

AnaEE was present at the last User Consultation Meeting (UCM) of the European Space Agency (ESA) on 15-16 September 2015 in Krakow, Poland. The ESA-UCM had for objective to gather the opinions and feedback of the scientific community on the two satellite Earth Explorer Missions to finally select one of them. The Fluorescence Explorer (FLEX) and the CarbonSat missions disclosed all the details of their objectives, requirements and ambitions to a wide scientific audience. AnaEE supported the FLEX mission, as the ambition of FLEX is to provide high-resolution (300x300m) global mapping of chlorophyll fluorescence of terrestrial plants as well as of coastal/inland waters. It aims to eventually deliver new remote sensing products for early stress detection and GPP estimation that might for instance become an ideal validation benchmark for AnaEE modelling platforms.

- 5TH INTERNATIONAL SYMPOSIUM ON SOIL ORGANIC MATTER, GÖTTINGEN, 20-24 SEPTEMBER 2015

AnaEE coordinator Abad Chabbi gave a keynote lecture on “Challenges and research needs in soil organic matter research in the context of climate change” at the 5th International Symposium on Soil Organic Matter, which took place in Göttingen, Germany from September 20th to September 24th, 2015. The presentation specifically featured the role of soil system science in climate change mitigation and the importance of the AnaEE infrastructure experimentation in providing the tools to confront the state-of-the art scientific understanding behind the proposition of storing annually 4 per mil (4‰) of the soil organic carbon stock to offset current anthropogenic emissions .

- ICOS FRANCE INAUGURATION, BORDEAUX, 24 SEPTEMBER 2015

AnaEE Communication and Lobbying Officer Elodie Parisot was present at the inauguration of the national research infrastructure ICOS France, which constitutes the French part of the European research infrastructure ICOS. ICOS, dedicated to ecosystem observation, and especially the carbon cycle, is attaining ERIC statute at the end of October and will now enter its operational phase.

Representatives from the French ministry of research and from the INRA, the CNRS and the CEA research institutes stressed the importance of transdisciplinarity, of thinking long term and anticipate future evolutions of the environment, and of having an open data policy. The carbon cycle is today the main issue of climate negotiations, and ICOS can play an important role in delivering high quality data on an international scale.

- EFSI INNOVATION WORKSHOP, BRUSSELS, 26 OCTOBER

AnaEE coordinator Abad Chabbi and communication officer Elodie Parisot were present at the “EFSI boosts innovation” workshop organized in Brussels by the European Commission on October 26th. The workshop aims to offer insights about EFSI, the European Fund for Strategic Investments: how it can boost investment in innovation, and what it can offer for its stakeholders and targets (large projects, infrastructures, or single companies)

- GEO-XII PLENARY SESSION AND THE GEO MINISTERIAL SUMMIT, MEXICO CITY, 11-13 November 2015

AnaEE coordinator Abad Chabbi has been invited to represent the European commission as delegate to the 12 Geo-XII Plenary Session and to participate in the Geo Ministerial Summit that will take place on 11-13 November 2015 in Mexico.

- ENVRI PLUS WEEK, PRAGUE, 16-20 NOVEMBER 2015

ENVRIPlus is a European cluster of environmental infrastructures. AnaEE coordinator Abad Chabbi will organize under the framework of the ENVRIPlus week (<http://www.envriplus.eu/>), which will take place in Prague from 16th to 20th November, 2015, an international workshop on “Science Interoperability across observatory networks”. The workshop aims to build bridges across networks of observatories and to determine how emerging environmental research questions can benefit from new interactions and scientific interoperability.

FOR MORE
INFORMATION
ON AnaEE

PLEASE CONTACT:

Elodie Parisot

AnaEE Communication/Lobbying Officer

communication@anaee.com

+33 1 76 21 61 98

www.anaee.com



This newsletter was drafted by Elodie Parisot and Abad Chabbi (INRA) with input from the entire AnaEE consortium.

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AnaEE NEWSLETTER

AnaEE NL 10 | October 2015 | www.anaee.com | 7

TABLE OF CONTENTS

EDITORIAL 1

AnaEE PLATFORMS SELECTION PROCESS 2

A new cluster for environmental and earth system research infrastructures in Europe 3

Excellence criteria in AnaEE 4

NATIONAL NEWS

- UK 5
- NORWAY 5
- FRANCE 5

RECENT NEWS AND UPCOMING DEVELOPMENTS 6