



ENGAGING WITH INDUSTRY

Starting From Climate

Research & Industry collaboration concretely shows how new capabilities for exchanging and processing data, as well as work done within the RDA, can provide elements of solutions to multiple problems.

The Earth Sciences department at Barcelona Supercomputing Center (BSC) intends to create an Interest Group about weather, climate and air quality, to explore and discuss the challenges for the use and efficient analysis of large and diverse datasets from the climate, weather and air quality communities.

Based on a collaboration between several research meteorological and European climate institutes and taking into account input from the private (renewable energy, satellite and agriculture sectors for example) and public sectors, this IG will suggest practical and applicable solutions for Big Data issues encountered by these communities, both at technological and policy level.

Francisco Javier Doblas-Reyes, ICREA research professor at the Barcelona Supercomputing Center-Centro Nacional de Supercomputación (BSC-CNS), Head of the Earth Sciences Department tells us more.

What's the status of the weather, climate and air quality industry today?

Weather, climate and air quality are issues of societal importance. However, it is uncommon to find industrial partners ready to be engaged with data scientists in these fields because the problems dealt with are mainly of social interest, with relatively small monetary relevance and with no patenting tradition. In addition, an important fragmentation is found in the industry producing and disseminating this kind of information. For instance, traditionally weather information is provided by national or regional weather services, which have both a public-service and/or commercial sides, and that compete at the same time with small and large consultancies and brokers. The actors producing and disseminating air quality and climate information coincide some times, and suffer from the same level of fragmentation. This makes that the industry and the social actors that are sensitive to environmental problems linked to our communities have to deal with a complex market, making the benefit that improved weather, climate and air quality information produce largely unknown to researchers. On top of this, the industry is often confronted with a varying level of openness of the data, to the point that sometimes it is even difficult to find the correct provider of a product when such product is not available in the public domain.



Why weather, climate and air quality information?

The COP21 was the most important international gathering of 2015. The agreement that came out of that conference, even if far from perfect, will have far-reaching consequences for the global economy, the ecosystems and the organisation of societies and will require that society, industry and research work together to build the solutions to make the agreement a reality. The decisions expected will entail astronomical sums of money, so that even a small sensitivity to weather, climate and air quality has an important impact in absolute terms. This will imply a huge demand for multi-faceted data, which must be reliable and sufficiently accurate to allow industries and policy makers to make better decisions. This is an example of the kind of challenges addressed by the weather, climate and air quality communities: the production of information from a wide variety of data sources, many of them producing some of the largest datasets in the world, for society to take adapt to and protect itself from environmental risks. The energy, health and world food security are directly linked to the efficient provision of weather, climate and air quality data. RDA is a good framework to facilitate the encounter of the weather, climate and air quality experts with those from other communities and ensure that the most recent technical developments benefit the search for better environmental information. Those developments should promote that information on weather, climate and air quality that already exists can be disseminated through a range of heterogeneous channels and with improved quality levels.

How you are engaging with industry stakeholders in RDA?

Scientists working in weather, climate and air quality problems have only recently started to engage with the industry. The change of culture necessary to make this engagement a reality has been favoured by the relatively recent involvement of researchers from social sciences into our research problems. As a result, standard practices in social sciences are increasingly being used by environmental research and operational institutions. For instance, for the energy sector, where public calls for funding are frequently open, we participate in bidding consortia with an industrial partner and under the condition that a scientist will spend time at the company's premises to ensure an appropriate transfer of knowledge. Some of this knowledge, maybe the most valued by the industrial partner, is the access to the data available using the data discovery tools that are continuously developed by our communities. Our contacts with the industry are registered in a local database that could be eventually explored by social scientists. Besides, we have found that one of the most rewarding approaches to interact with the industry consists in, instead of organising generic workshops for a range of users, participating actively in professional conferences. This approach is more costly in terms of both time and financial investment for research institutions, but allows the engagement with a whole sector at a time and to get first-hand information about their needs

Think how to calculate the actual value of data management for this industry?

As mentioned above, a large part of the information provided by our communities does not have a monetary but a social value because it helps citizens to improve their lives. Hence, creating, managing and disseminating weather, climate and air quality data in a proper and efficient way is good for society. It is difficult to say what financial return can be made out of these data because the private sector does not naturally provide monetary information of their sensitivity to external factors, and even less of the impact of the specific solutions our communities provide (such as a new and more robust source of climate information for adaptation to climate change) to reduce such sensitivity. However, we work with industrial partners to demonstrate that there is an ingestion of the information we produce into their decision making processes and that they are ready to invest in licences to obtain this information operationally. In this context, the analysis of surveys on social aspects of the environmental management, which could also measure their environmental responsibility (their actions in towards emission reductions), the number of joint ventures, the uptake of practices, software and freeware codes, and the creation of spin-offs could be used to estimate the performance of our engagement with the industry.