



A spatial data infrastructure dedicated to the interoperable exchange of meteorological measurements in renewable energies

Lionel Menard, Philippe Blanc, Benoit Gschwind, and Lucien Wald

MINES ParisTech - PSL Research University, Sophia Antipolis cedex, France (lucien.wald@mines-paristech.fr)

The meteorological measurements are identified as essential by energy producers and project developers of plants producing renewable energy for their business development. Policy-makers also need information based on such measurements to set up energy policies at local to national levels. Different Earth Observation (EO) components provide estimations of the meteorological variables: in situ sensors, processing of images taken by meteorological satellites, and numerical weather models. Currently, all these components are used by companies and policy-makers in the renewable energy domain. However, they are used individually, while an efficient means of joint exploitation would bring great benefit. Such exploitation implies exchange of those data but means to exchange in-situ measurements across companies and between stakeholders in the market are still missing or of low specifications. A new dedicated spatial data infrastructure (SDI) is presented here that intends to fill this gap and enable integration and access to meteorological observations by stakeholders. This SDI provides an efficient means to find, access, view, download and eventually use data easily using well recognized standards. Data providers benefit from well-established quality-controlled procedures prior to data integration in the SDI. The main bottlenecks to the implementation of the SDI are technological obstacles and Intellectual Property Rights (IPR). Major technical difficulties arise because there are many data providers using many different sensor instruments. This is tackled by founding the SDI on a uniform, platform-independent and interoperable approach benefiting from GEOSS (Global Earth Observation System of Systems) recommendations on interoperability and by making extensive use of recognized international geospatial standards such as the OGC SWE (Sensor Web Enablement) framework. From the IPR point of view, commercial use of data from large meteorological networks is usually not allowed and companies are inclined not to publicly share data. However, efforts are being made to convince these stakeholders with some success.