

Atmosfiller

The main objective of this activity is to perform a study to assess the potential of using non-conventional data within existing algorithms and how to ingest this data, in order to complete the estimation of atmospheric parameters in areas where there is, typically, a lack of data. This study might pave the way to define, in the future, the requirements as well as candidate algorithms for real-time and forecast Weather and Space Weather operational systems.

This work shall summarize the utilization and added value of atmospheric (ionosphere and troposphere) sensitive measurements taken by different kind of instruments under different geometries and worldwide distribution. Among this, it will be described the current state of the art in terms of Weather and Space Weather monitoring (both real-time and forecast) and the data used in such operational systems. As such, one of the main goals is to contribute in the identification on the limitations of such systems and to assess if the usage of non-conventional data can mitigate such limitations and to what extent. Non-conventional data is understood as data that is not usually considered in existing operational systems, like GNSS data coming from low cost receivers such as smartphones or low cost single-frequency receivers. Furthermore Ionospheric data like Electron density values measured by ionosondes (or digisondes) or Vertical Total Electron Content (VTEC) measured by dual-frequency altimeters. Last but not least the added value of smart-dust sensors or sensor “motes” (humidity, temperature, pressure, CO_x, NO_x, PM_{2.5}, PM₁₀) shall be evaluated.