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Status and Roadmap of the Global Air Quality Data Network

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With the recognition of air quality as a transboundary problem the need for harmonizing, harvesting and synthesizing air quality data on the continental and global scale has grown. Observational data from urban, rural and remote surface sites, from regular aircraft flights and from satellites are made available together with numerical analyses and forecasts of the atmospheric chemical composition through various databases, which are for historic reasons only loosely connected and rarely allow for a seamless, interoperable and easy access across different networks and data centers. A number of pilot services have been established under the auspices of the GEO Air Quality Community of Practice, and a meeting of this community in 2011 discussed the technical and semantic challenges for linking these services together and expanding the existing air quality data network. Key issues that were identified are the capability of existing server software to translate data formats and metadata requirements, the lack of a community-wide coherent set of metadata tags to identify data sets in catalogue applications, the need for clear rules to define the granularity of data sets in catalogues, the requirement of data traceability and information needs on calibration and modification records, and the ambiguities in the interpretation of current information exchange standards such as WCS and netcdf-CF. Particular challenges for exchanging air quality data result from the need for near-realtime information and from the necessity to obtain concurrent meteorological data in order to assess and interpret the air quality information. This presentation will summarize the present status of the air quality data network and provide a draft roadmap for the future development.