SODA: A PROJECT FOR THE INTEGRATION AND EXPLOITATION OF NETWORKED SOLAR RADIATION DATABASES

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There is a strong need for information on solar radiation for various environmental and industrial applications. Solar radiation is measured by ground networks of measuring stations, but well-controlled measurements are scarce due to large investment and maintenance costs. Hence, there is a large discrepancy between user request and available information. Large gains in terms of efficiency, costs, etc. will be attained by research institutes if relevant information were more easily available for virtually any geographical location at any time. Information and communications technologies could play a major role in solving this problem. Recent projects have demonstrated the usefulness of image processing techniques for extracting solar radiation information from Earth observation satellite images. Three major problems have been identified and should be solved to supply the customers with information relevant to their requests: improved access to information, improved knowledge in space and time structures of the irradiation, improved matching to actual customer needs.

The project SoDa is based on considerable previous experience, and used it as a springboard to answer customer needs by an efficient use of advanced information and communication technologies. The SoDa multi-disciplinary consortium gathers companies and researchers with the necessary expertise in solar radiation and information and communication technologies. Customers and potential users are also represented as partners in the consortium via the involvement of commercial private vendors of solar radiation databases and of representatives of large research and development programs. Customers were recruited to assess the prototype. The project SoDa builds on the expertise gained in previous projects, such as the digital atlases MeteoNorm and European Solar Radiation Atlas, the Web servers Satel-Light and Helioserve, and the Guide of the Chartered Institute of Building Services Engineers of United Kingdom.

An integration of information sources of different natures within a smart network has been realised. Two prototypes were made and a third and final one will be available in June 2002. They use Internet technology to integrate and efficiently exploit diverse networked information sources to supply value-added information. These sources include databases containing solar radiation parameters and other relevant information (meteorology, geography, terrain elevation, satellite-borne sensor parameters). Several of these databases originate from an advanced processing of remote sensing images. These databases were available separately.

The SoDa prototype thus improve the access to data and to solar radiation-related information.

The information sources also include application-specific user-oriented numerical models and advanced algorithms. Efforts were made on interpolation methods and satellite data processing to achieve better quality. Geographical coverage of the information may extend to the whole world in an unprecedented approach. Applications are developed to supply information actually needed by customers, instead of raw data. The project SoDa focuses on several applications in environment and connected domains: air quality in cities, vegetation, coastal zones.

The system is being validated through users trials, and its benefits will be assessed. This project SoDa is looking for customers ready to assess the value of the service in their applications. The project SoDa is funded by the European Commission, IST-1999-12245 (KA1- systems and services for the citizens).