

Foreword to the 9 DUST-2 related papers published in Phys.Chem. Earth(A), vol 25, No. 8, Nov. 2000

DUST-2: An interactive graphic linkage of texts and data, applied to ozone and water vapor and other selected data of the Earth's atmosphere.

The exponential growth of geophysical information must lead inevitably to a better access to this information for science and education, especially if the resources shrink and if the cost efficiency ratio should nonetheless be improved. That a better access means more than just to get faster more information can be demonstrated with the DUST-2 CD-ROM which has been published by the Max-Planck-Institut für Aeronomie in September 2000 under ISBN 3-980 4862-3-0, and which shows first steps to a more integrative access to the geophysical information. It is dominated by a bottom to top management. DUST-2 is available as a CD-ROM version since September 2000 from the Copernicus Gesellschaft in Katlenburg-Lindau: URL: www.copernicus.org/EGS/EGS.html; Shipping & Handling 12 EUR. The 9 papers, special ones and a general introductory one – describe the scientific-technical background of partly new methods and upgraded classical ones that until now have been insufficiently interrelated (combined) and integrated – in its real sense, which is needed if we want to provide complementary in the same information system i.e. not only information width but also information depth. The new method described in paper 9: “Interactive text retrieval based on document similarity” has been applied not only to several thousand texts, titles and abstracts from classical information sources, - related to ozone and water vapor of the Earth's atmosphere –, but also to more than 6000 abstracts which have been submitted to the 25th General Assembly of the European Geophysical Society (EGS 2000) held in April 2000 in Nice, France. Interactive tests with the new method can be performed with the DUST-2. The very promising results suggest that a further development should be encouraged leading to a more efficient updating of thesauri and likely to a “learning browser for geophysics” The complementary method described in paper 2 “Conceptual knowledge processing and graphical representation of multidimensional atmospheric ozone data” allows similar work with the numerical data, however not yet interactive here, mainly because of software copyright problems. The purpose of this paper is to visualize atmospheric ozone data using a new knowledge representation method called Formal Concept Analysis (FCA). This method is based on the concept of concept and represents data in hierarchical line diagrams combining the logic of implications with statistical frequency analysis and hierarchical search methods. Considering this and the other interesting results we are convinced that we should make them known already in this early stage to the broader scientific community and solicit for comments and contributions for an envisaged continuation of this work – very likely realised in the so called ADLATUS concept -, which however needs a successful fundraising.

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