

Integration of environmental datasets, formats and software in the IODE resource kit

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The Intergovernmental Oceanographic Commission's (IOC) International Oceanographic Data and Information Exchange Program (IODE) manages a training program in marine data management, oriented towards the development of national oceanographic data centres in developing coastal states. Supported chiefly by contributions from Flanders, the IODE program has developed an extensive suite of Web-based training materials called the IODE Resource Kit. A component of the Kit is a major section entitled 'Data Analysis and Products' designed to introduce mid-level oceanographers to global and regional environmental datasets, the principal formats used for their storage and distribution, and public-domain software for marine data quality-control and analysis. This section of the Kit is the modern-day incarnation of the 'OceanPC' Project operated in the 1990's by the IOC/IODE.

A principal aim of the 'Data Analysis and Products' section has been to achieve integration between the major datasets selected for IODE training, using existing pathways between them afforded by specific format compatibilities. This functionality was sought in the predecessor program, but was never fully realized due to the lack of suitable software, particularly in the area of satellite imagery and other spatial data. Fortunately, it is now possible to identify a large suite of public-domain software programs that not only provide bridging functions between various databases (based on their individual abilities to import and export important formats), but also perform many analysis and quality-control functions. The exceedingly complex diagram that would be necessary to illustrate these connectivities has been split into three functional schematics used in the IODE training curriculum. Virtually every dataset used in the classes can be located on the diagrams, and easy paths can be traced to any desired software program. A set of 50 illustrated tutorials has been developed to give step-by-step directions on the processes involved.

The processing levels within the IODE Resource Kit schematics range from raw data (on physical log-sheets), to spreadsheet and relational database software, to popular grid-and-contour software, to multi-parameter synthesis in Geographic Information System (GIS) applications. All but one of the software programs used in the Kit are available freely (from either the Web or from special CD-ROMs used in IODE workshops), but students are responsible for obtaining individual licenses, where required. At the present time, there are no major global or regional environmental datasets that cannot be identified on the IODE schematics, and synthesis of all types is easily possible in a public-domain GIS browser program.