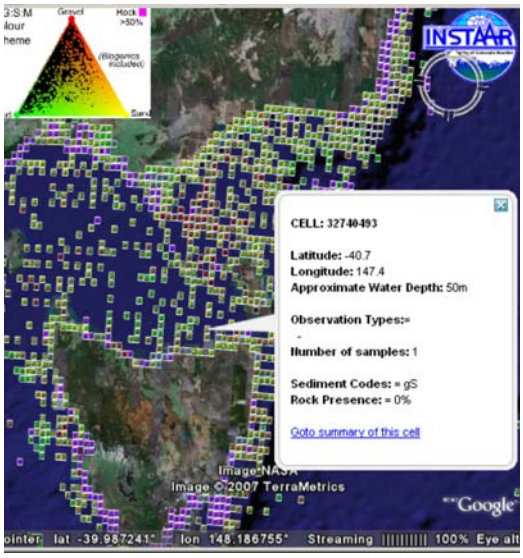
News
July 2008

Foreword

The usership of dbSEABED is increasing dramatically so it is time to begin a regular newsletter for the dissemination of news and views. Here is the first of the bi-annual series.

Australian Seabed in Virtual Globe



Efficient delivery of data to an interdisciplinary audience is a challenge when that information is based on large volumes of detailed and diverse input data. Thematic griddings, such as of gravel percent, are a popular style of delivery but binnings as in this KML may be a better compromise for delivering sufficient detail to users in an uncomplicated way.

Google Earth has popularized Virtual Globe technologies and is ideal as a medium for delivering the binned data to users ranging from community to specialists.

A binned delivery of data for the Australian EEZ was launched in May 2008 (web search: "auSEABED KML"). It allows all the public and researchers to answer the question "What is the seabed like at Point-X ?"

Object Burial in a Mixed Seabed

The importance of having information on biological parts of the seabed, as opposed to just the clastic sediment is highlighted in studies of naval mine burial in the Baltic Sea. In Mecklenburg Bucht, Germany, grainsize analyses had marked the central sediments as just muds, but then analysis of the word-based data on the same samples revealed mussel shell and gravel components that had been overlooked.

New mappings of the sea bottom types using dbSEABED were generated and tested in a series of mine impact and Sting penetrometer experiments. The results confirmed that shell and gravel objects and layers do interfere with the mechanics of an object passing through near-surface sediments of the seabed.

Thomas Wever's evocation of an impact burial experiment in the seabed, Baltic Sea, Germany.

Ocean Acidification Project Begins

A less well known side-effect of man's use of carbon for energy is the changing pH of the oceans. This acidification may have serious consequences for oceanic productivity and has a much longer time for reversal than carbon climate change.

Seafloor carbonate sediments may play an important role in the mitigation of these effects, for buffering and as carbon sinks.

Whole-ocean data layers were recently supplied to J.-P. Gattuso at CNRS Villefranche, France, J. Kleypas at UCAR Boulder, USA, and F Gazeau at NIOO Netherlands to help quantify the global extent to which shallow-water carbonates including aragonite might mitigate acidification. Sediment carbonate contents are mappable using dbSEABED. The distribution of aragonite is marked by mineral analyses and by the distribution of pteropods, certain forams and bryozoa, bivalves, and corals.

The Real Seabed

Each newsletter will show a photo of the real seabed. This one by Stephan Tait of Cairns, of a school of 'Sweet' hovering at a rock precipice in the Great Barrier Reef, highlights the importance of seabed features as refuges for creatures.

Cod Hole on Number 10 Ribbon Reef, Great Barrier Reef, Australia; photo by Stephan Tait, Cairns.

Technical Pointer

Isotope, biostratigraphic and chronostratigraphic datings, are recognized data types in dbSEABED.

At input, numerical age datings can be accompanied by ± values, and metadata on correcting effects where necessary. Word-based age datings - such as from fossil identifications - can be entered as well. In the dictionary/thesaurus an age range in Ma is assigned to each age object, with uncertainties at the earliest and latest boundary.

At output, the middle age of a feature or unit is given numerically in Ma with error bounds as an option. It is possible then to plot data by age in a GIS or data discovery system.

Statistics and Publications

As of this time, dbSEABED mappable and quality verified data contains over 1.08 million seabed sites, 1.4 million samples, and a total of 9.5 million data items. This represents the harmonization of over 1430 datasets.

Data collections added recently include 38,000 sites for Brazil, 9,000 for inshore Western Australia, the entire IODP Visual Core Description (VCD) dataset (324 sites) and smaller additions for New Zealand, Mauretania, the UK, and the Adriatic Sea.

Recent publications: John Goff et al. on seabed statistical variability from the usSEABED data collection; Chris Jenkins and Thomas Wever on mine impact burial burial using experiment data and GIS; Fangjun Li et al. on subsea pipeline risks with climate change.

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