2008 Western Pacific Geophysics Meeting
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Cite abstracts as **Author(s) (2008), Title, *Eos Trans. AGU, 89*(23), West. Pac. Geophys. Meet. Suppl., Abstract xxxxx-xx**

Your query was:
margin revealed

HR: 08:30h
AN: **OS51B-01 [WITHDRAWN]**
TI: The Great Barrier Reef Margin Revealed: Implications for Deep-Water Biodiversity Distribution
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AB: We present new high-resolution multibeam bathymetry datasets from the Great Barrier Reef (GBR) margin. Analysis of these data, combined with sub-bottom profiles and rock dredge samples, provides a fresh insight into the detailed morphology and spatial distribution of GBR margin geomorphic features to 2000 metres depth. The multibeam and seismic data reveal a spectacular network of submarine canyons, slump scars and landslide deposits on the continental slope and upper basin. These data provide a unique insight into the fundamental processes that have shaped the evolution of the GBR margin. Numerous V-shaped canyons incise the slope suggesting active erosion is taking place. Tension cracks and smaller feeder canyons around the heads of the canyons are observed in about 250 m. The canyons often terminate in the Queensland Trough as slide scarps and debris fields where progressive upslope erosion has reduced the stability of the parent margin sediments. We also investigated a cluster of eight knolls in the Queensland Trough up to two km long and over 100 m high in depths of about 1100 m. Sub-bottom profiles across the knolls reveal they are discrete, seismically-opaque blocks capped by about 15 m of soft sediments. A rock dredge recovered evidence of a cold-water coral community, comprising abundant live and dead colonial corals, barnacles, gastropods and manganese-coated concretions, within a matrix of muddy carbonate sediment. These findings suggest the blocks may have broken off the GBR margin as catastrophic landslides, moving down the lower slope and coming to rest in the basin where they now form a habitat for a deep, cold-water coral community. These new observations reveal a diverse picture of the deep margin of the GBR, which will provide important baseline seabed physical data as proxies for benthic habitats and biodiversity distribution in the GBR World Heritage Area (GBRWHA). In particular, slope gradient variation, surficial sediment distribution and any active sedimentation pathways are likely to be important controlling factors in the habitat relationships with assemblages of deep-water biodiversity. Post-cruise analyses of the marine geophysical, geological and biological data will now focus on precise age dating and quantitative analysis of samples, and sedimentary facies and geomorphic mapping to provide new information about the spatial relationships between seabed physical data and deep-water benthic habitats of the GBRWHA.
UR: **http://www.marine.csiro.au/nationalfacility/voyagedocs/2007/summarySS07-2007.pdf**

DE: 3002 Continental shelf and slope processes (4219)
DE: 3045 Seafloor morphology, geology, and geophysics
SC: Ocean Sciences [OS]
MN: 2008 Western Pacific Geophysics Meeting

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