

**Report on second meeting of Tectonics/Climate Panel,
Toronto, Canada
October 29-30 1998**

The Tectonics/Climate Panel (TCP) met in Toronto for two days to discuss further planning for meeting the group charge. This was the second meeting of the group. All members were present and the meeting was also attended (whole or in part) by Kate Moran and Bill Hay.

At the end of the first meeting (May, 1999) we decided to review existing ODP proposals relevant to the charge. At our second meeting a substantial amount of time was invested in familiarizing ourselves with these proposals in order to get spun up better on the subject matter. No decisions were made with respect to recommendations of the various proposals, however.

Another charge was to solicit support for additional pre-2003 drilling. We have succeeded in stimulating one new proposal submission (Bengal Fan drilling), with the hope of a second proposal (Greenland-Scotland gateway) being submitted in the spring, 1999. Attempts to encourage a proposal for the northern 90 E ridge (distal Bengal Fan) failed. We also discussed the possibility of revitalizing Proposal 483 (P Barker, Drake Passage), but the senior protagonist, who was at the meeting, was not sure whether there was sufficient time for this research effort before 2003.

The third part was devoted to how we would address the main charge of the meeting, preparation of a report to ODP on TCP needs and priorities for post-2003 drilling. Several different themes were identified:

1) relation between uplift and weathering - how much does each influence the other? Here it was felt that the future thrust should be in three directions: (a) analysis of the Tibetan-Himalayan complex because of its significant affect on the atmospheric circulation, weathering, and delivery of sediment to the ocean; (b) analysis of smaller more isolated complexes (New Zealand, Taiwan, Alaska), where it might be easier to separate the influence of climate on uplift rates; and (c) study of intervals of low uplift and input to the ocean (e.g., Cretaceous) as an example of the opposite extreme.

2) study of ocean gateways as a means of determining their role in

distributing heat among the ocean basins and their consequent effect on climate. Four main priorities were identified: (a) the role of the Greenland-Scotland Ridge in regulating outflow of deep water to the North Atlantic Basin; (b) the role of the Indonesian straits in development of the western Pacific warm pool and establishment of the El Nino/Southern Oscillation phenomenon; (c) the role of the Drake Passage in regulating heat and water mass exchange between the subtropics and Antarctica (especially the timing of when these changes took place); and (d) the role of the Panama Straits in preconditioning Atlantic surface waters for deep convection and also in development of the present equatorial Pacific circulation.

3) the role of Large Igneous Provinces on release of CO₂ to the atmosphere. Topics discussed involved case studies of individual provinces and possible geochemical proxies for changes in global LIP activity.

4) the role of changes in plate motion (including ridge jumps) on atmospheric CO₂ and opening and closing of ocean gateways. The CTP panel discussed a very preliminary draft of a document for ODP and made a number of suggested changes. These changes will be incorporated into subsequent drafts; the panel felt that the remaining work on the draft could be done via email and questioned whether it was necessary for a third meeting (no meeting was formally scheduled). The panel hopes to have the document ready by spring, 1999, before the meeting in Vancouver.

The panel also was not sure whether they could fully address the ODP charge of building a better link to the land geology community. It would seem that a larger number of individuals would have to be involved in order to clarify just how this could be done. The panel discussed the possibility of recommending that ODP organize a separate workshop on this matter to flush out the problem better, but no formal recommendation was made on the topic because it was felt that the problem could be evaluated better after its report was finalized.

Submitted by T. Crowley (25 January 1999)