

Report of Climate-Tectonics PPG May 1998

The Climate Tectonics PPG met in College Station, Texas in May 1998 for their first meeting. All but H. Sakai and K. Moran were able to attend. The committee first reviewed some basic science issues with respect to effects of tectonics on climate, role of weathering on carbon dioxide changes, and uplift of the Tibetan-Himalayan complex. Then we discussed present/upcoming ODP legs that might be relevant to the group, and also any ODP proposals in the pipeline that might be relevant. A considerable amount of time was spent on going through possible science issues on a basin-by-basin basis to determine if there might be any opportunities for soliciting new proposals that might be approved and drilled before 2003.

Much of the discussion dwelt on the importance of gateway and uplift changes as perhaps being most relevant to the group charge; however plate reorganizations and plume events may also be important for CO₂ changes. We hope to clarify the question of priorities more at the next meeting.

The committee felt that there might be opportunities for proposals not in the pipeline that might lead to new drilling relevant to the tectonics-climate issue:

(1) 1-2 legs in the northern Indian Ocean, one from the Bengal Fan and one perhaps along the 90 E ridge. The two legs would be complementary - the Bengal Fan recording the most proximal record of sediment changes, the 90 E ridge record might have sediments with more stratigraphic control; and (2) a leg focusing on the Greenland-Scotland Ridge as a possible valve modulating NADW production. Some prior results suggest that intermittent pulsations of magmatic activity on the ridge may have short-circuited NADW production by cutting off (or restricting even more) the Greenland-Norwegian Seas from the subpolar North Atlantic.

Volkhard Spiess, Christian France-Lanord, and others are undertaking exploratory discussions on a Bengal Fan leg. Jim Wright has tentatively agreed to look into the possibility of writing a proposal on the Greenland-Scotland Ridge. Warren Prell would be a good candidate for the 90E ridge leg, but he may be overburdened due to his co-chief scientist role on upcoming South China Sea leg.

We also discussed the Indonesian Throughflow problem but did not reach any clear conclusions other than to try to determine in the future whether an existing proposal by Brad Opdyke might provide valuable information critical to this problem.

The committee agreed to meet in Toronto at the end of GSA on October 29-30,

with the possibility of some people meeting on October 28 to discuss the possible new northern IO proposals. At that time we also hope to have a replacement for Kate Moran (Canadian rep). We plan to (1) evaluate further existing proposals that might be relevant to the group; (2) assess progress on soliciting of new proposals for the G-S Ridge and northern IO; and (3) work on a rough draft of a report by the group.

With respect to the latter task the committee is still a little unclear as to our primary role - encouraging of new proposals pre-2003 or designing a science plan that would effectively be relevant to the post-2003 era. My personal opinion is that we can do both but should eventually emphasize the latter, as I can foresee only a 2-3 new legs being approved prior to 2003 (of proposals that are not already in the pipeline).

Along this line I decided after the meeting to attempt a very preliminary draft of a report by the Toronto meeting that would provide a better focal point for the committee to discuss relevant issues. This report would be open to complete modification and is merely meant as a straw man to jump start and focus the discussion.

T. Crowley, Chair Climate-Tectonics PPG

Thomas J. Crowley
Dept. of Oceanography
Texas A&M University
College Station, TX 77843-3146
409-845-0795
409-847-8879 (fax)
409-845-6331 (alternate fax)