2010 GEOTRACES Asia Planning Workshop in Taipei

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East and South Asia, the most populous region on Earth, face the Western Pacific Ocean, the Indian Ocean and their marginal seas. Diverse anthropogenic and natural forcings coexist and interact in the biogeochemical cycling of trace elements and isotopes (TEIs) in these waters. However, their key regulating processes still remain largely to be explored. The 2010 GEOTRACES Asia Planning Workshop was held at Academia Sinica, Taipei, Taiwan during October 3-7. The major objectives were first to identify the key processes that regulate the biogeochemical cycles of TEIs in the waters and then to generate a future action plan for TEIs research. The participants included 25 Asian scientists from China, India, Japan, Korea, and Taiwan, 10 American and European scientists, and about 30 local graduate students. Detailed workshop information is shown in the website: http://proj3.sinica.edu.tw/~geotrace/index.htm.

Following plenary talks presented in the first two days, three breakout groups were formed for further topical discussion, including water column, sinking particles, and submarine groundwater discharge (SGD) groups. The suggestions proposed by the groups were further discussed in the final plenary session. Some of the major conclusions achieved are highlighted here. First, capacity building is essential for most Asian countries prior to initiating a complete GEOTRACES program. Currently, only Japan and Taiwan own clean sampling facilities and only Japan is capable of doing shipboard analysis for contamination prone trace metals. It is thus important to select crossover stations at deep-water sites to maintain an intercalibration effort for the key TEIs as Asian countries develop their capacity for TEIs analysis. The SGD group recommended selecting SGD sampling sites in the waters along Chinese coasts where the population is huge to evaluate the relative importance of SGD for nutrient and trace metal inputs in comparison to riverine and aeolian sources. The sinking particle group emphasized that the East Asia oceanic waters are regions with exceptionally high external particle inputs from both atmospheric and riverine sources and also with high gradients of external inputs over the broad continental shelves. Evaluating the fate of aerosol deposition is a high priority for TEIs study in the regions. Some of the research topics proposed during the workshop match closely with the core study of SOLAS and provide opportunities for future collaboration.

Overall, the workshop was successful and productive, largely due to the open-handed suggestions and insights provided by the American and European scientists. At the end, a future cruise plan was proposed by the Asian representatives (Fig. 1).

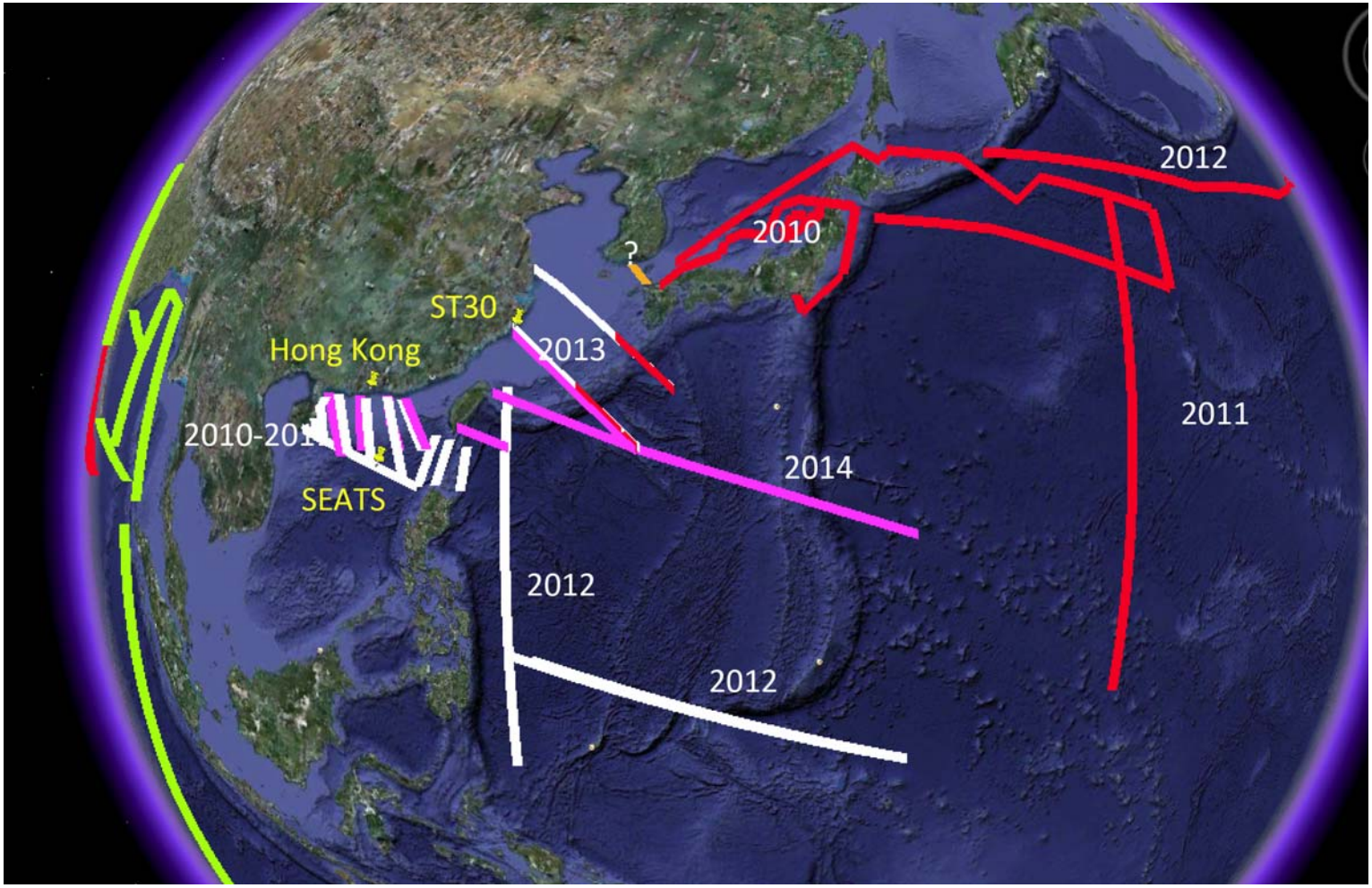

Figure 1. Ongoing and proposed Asian GEOTRACES cruises shown on the map of Google Earth. The red line cruises are or will be carried out by Japan; the white lines by China, the pink lines by Taiwan; the green lines by India. The yellow pins labeled as 'ST30' and 'Hong Kong' stand for SGD stations. The 'SEATS' site would be a crossover deep-water station. The numbers next to the lines stand for the possible years to carry out the cruises.