Study of PAHs' and PCBs' occurrence and fate in marine aerosols of Eastern Mediterranean

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We studied the atmospheric process of PAHs and PCBs occurring in the Eastern Mediterranean (Island of Crete-Greece).

The total atmospheric concentration of 35 PAHs, was 4.1-57.2 ng m^{-3} (90% in gas phase). Air-sea exchange was estimated to introduce 865 tonnes y^{-1} of PAHs in the whole eastern Mediterranean basin, while the corresponding wet and dry deposition fluxes were 235 and 75 tonnes y^{-1}, respectively.

The average concentrations of 74 PCB congeners in the gas and particulate phases of the atmosphere were 70 pg m^{-3} and 2.3 pg m^{-3}, respectively. Calculations have shown that 1,000 kg y^{-1} and 200 kg y^{-1} were eliminated from the atmosphere through wet and dry deposition respectively. Air-sea exchange eliminated 700 kg y^{-1}, and PCB losses via hydroxyl radical atmospheric reaction eliminated ca. 4,000 kg y^{-1}.

Sediment traps deployed in the same area have shown that sedimentation rates of total PAHs at depths of 250m and 1440m were 10.3 and 8.3 μg m^{-2} y^{-1} respectively. The corresponding results of fluxes for total PCBs ranged from 1.1 - 0.9 ng m^{-2} d^{-1} (depth: 250-2820 m).

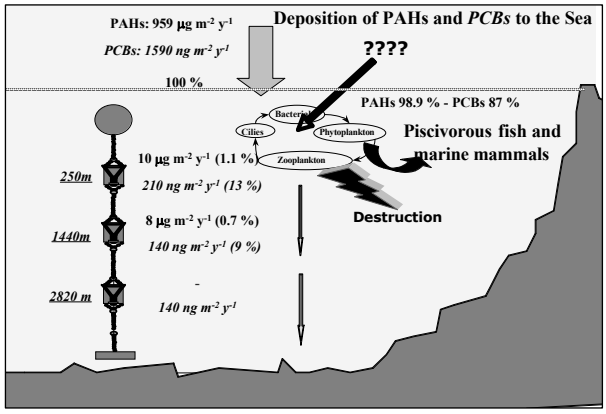

Figure 1: Estimated fluxes of PAHs and PCBs.

Hornblende Ar-Ar and zircon U-Pb evidence for provenance of eastern Weddell Sea glaciogenic sediments, Antarctica

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Most of Antarctica's geology is obscured by ice, and evidence is based on using remote methods to extend observations of rock outcrops around the perimeter to the continental scale. More data on the age and geological history of East Antarctica would help to resolve questions about Antarctica's role in ancient continental configurations [1-4]. To characterize the geology under the ice, we have taken proximal glaciogenic samples in this region. Ar-Ar ages of individual detrital hornblende grains vary along the margin (Fig. 1), and collectively show dominant 500 Ma and 1000 Ma populations, consistent with [5]. U-Pb ages of individual detrital zircon grains were measured in IWSOE70 2/22/2001 and are generally consistent with the hornblende results.

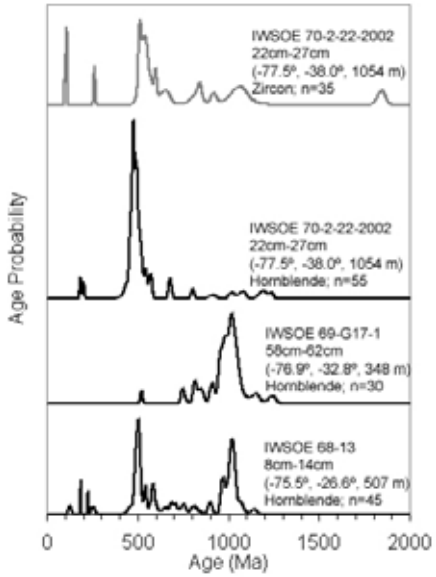

Figure 1: Normalized age probability plot for glaciogenic samples from the eastern Weddell Sea.

[1] Moores (1991) *Geology*. [2] Dalziel (1991) *Geology* 598-601. [3] Hoffman (1991) *Science* 1409-1412. [4] Borg & DePaolo (1994) *Geology* 307-310. [5] Roy *et al.* (2007) *Chem. Geol*. **244**, 507-519.