

Global Biogeochemical Modeling of Mercury in GEOS-Chem

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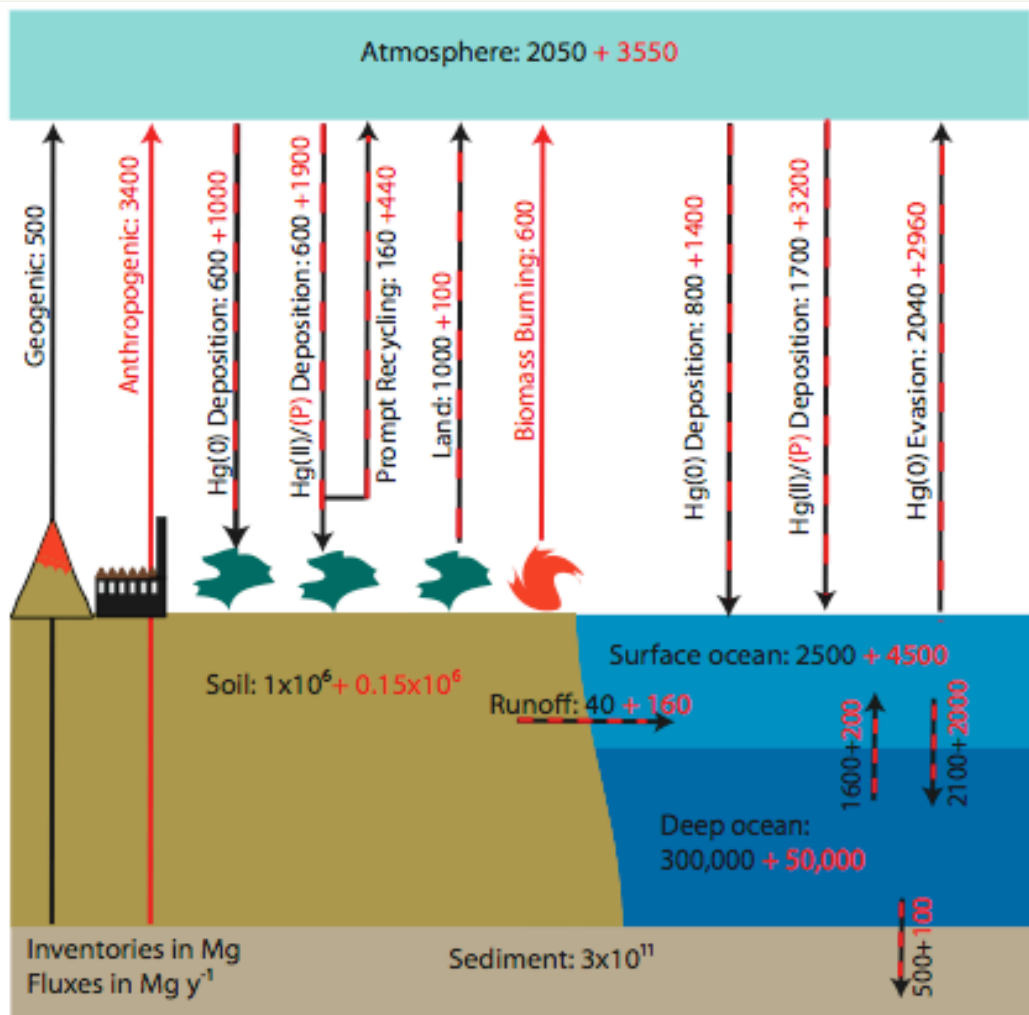
Noelle Selin (*MIT*)

Lyatt Jaeglé, Sarah Strode (*U. Washington*)

Nicole Smith-Downey (*U. Texas*)

Anne Laerke Sorenson (*U. Aarhus, Denmark*)

Global Hg Budget

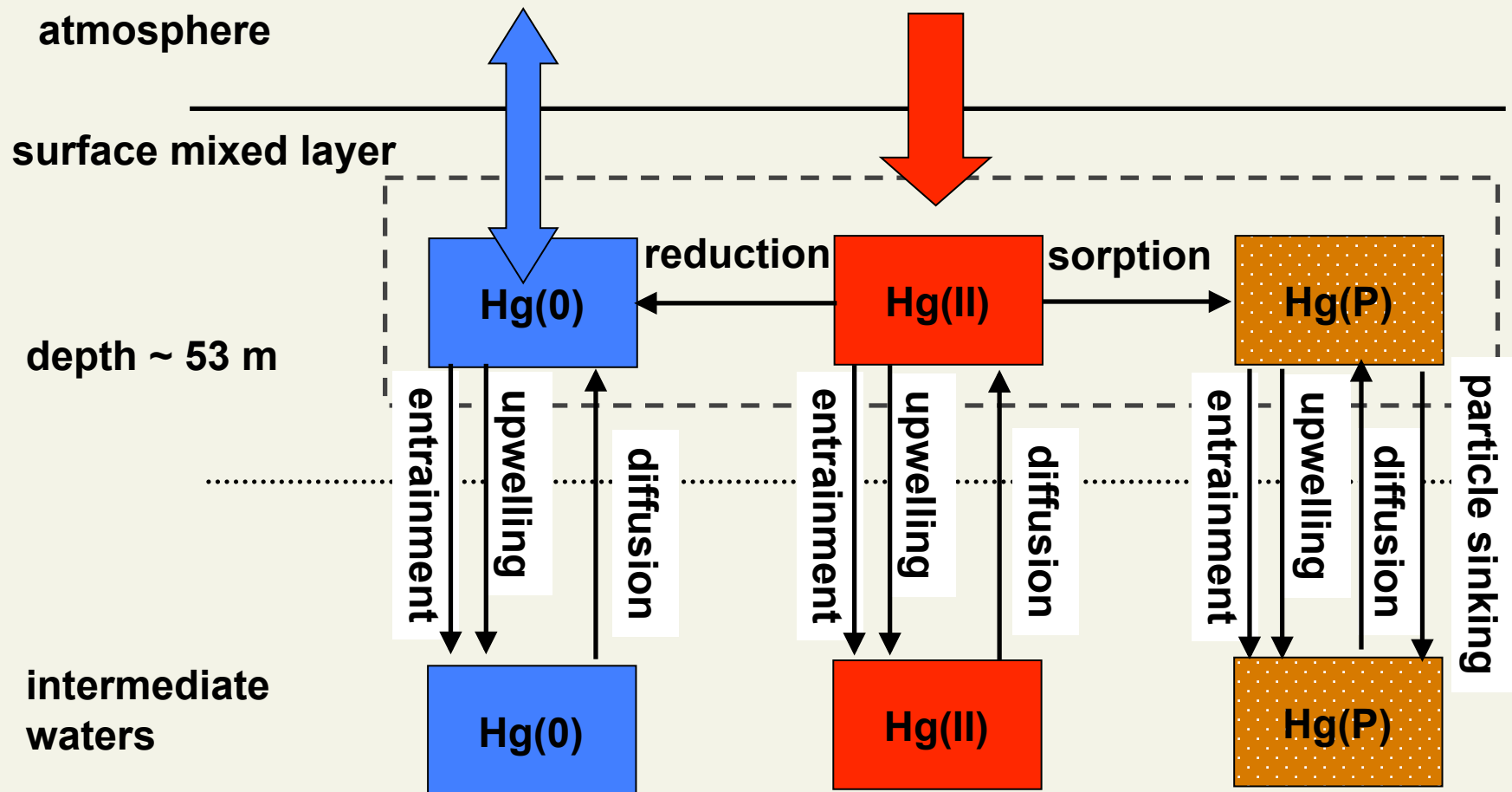


Black denotes natural fluxes

Red denotes anthropogenic fluxes

Source: Selin, *Ann. Rev. Environ. Res.* (2009)

Surface Slab Ocean



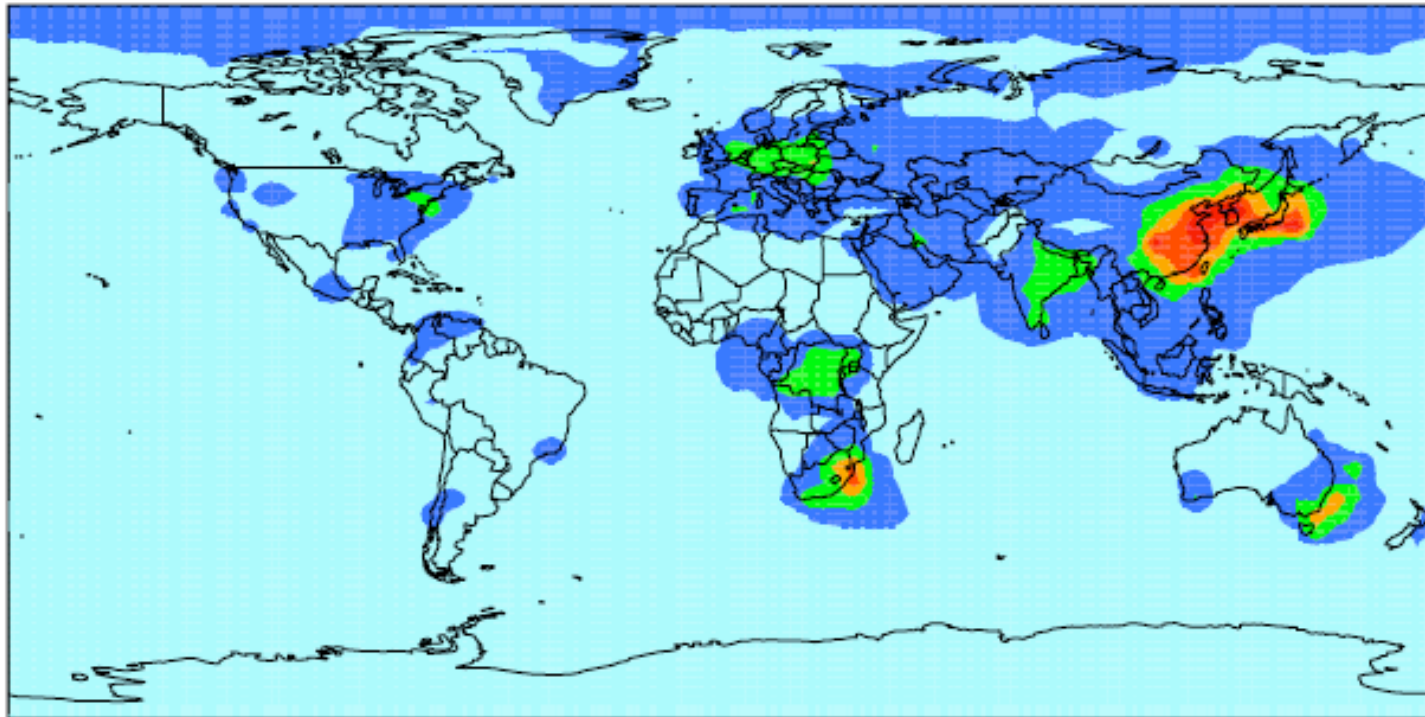
Source: Strode et al., *Global Biogeochem. Cycles*, 2007

Poster

- Enhancements to the ocean mercury modeling capability in GEOS-Chem
- Key Process Updates:
 - Surface-slab model
 - Intermediate and deep ocean water included
 - MeHg added as a tracer

First Land-Atmosphere-Ocean Model

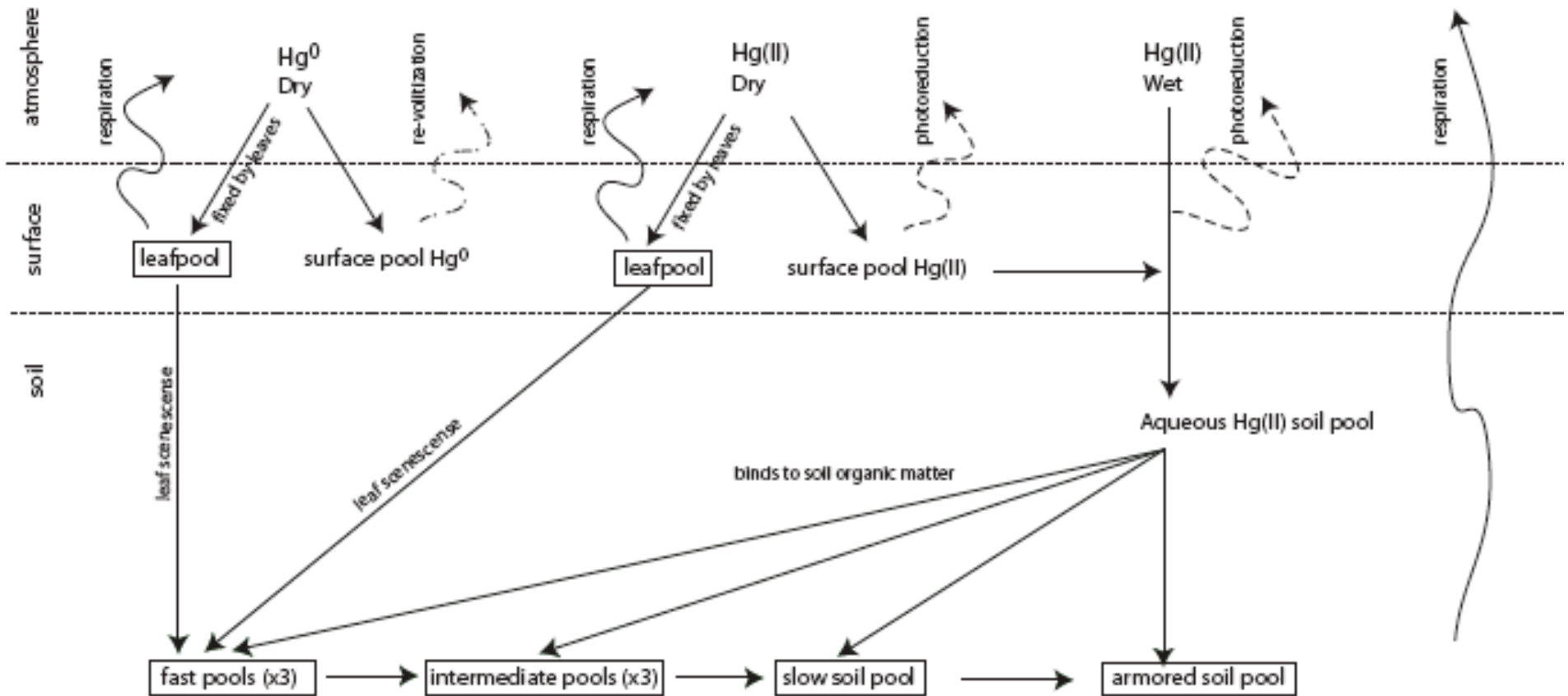
Anthropogenic Enrichment of Mercury Deposition



Source: Selin et al., *Global Biogeochem. Cycles*, 2008

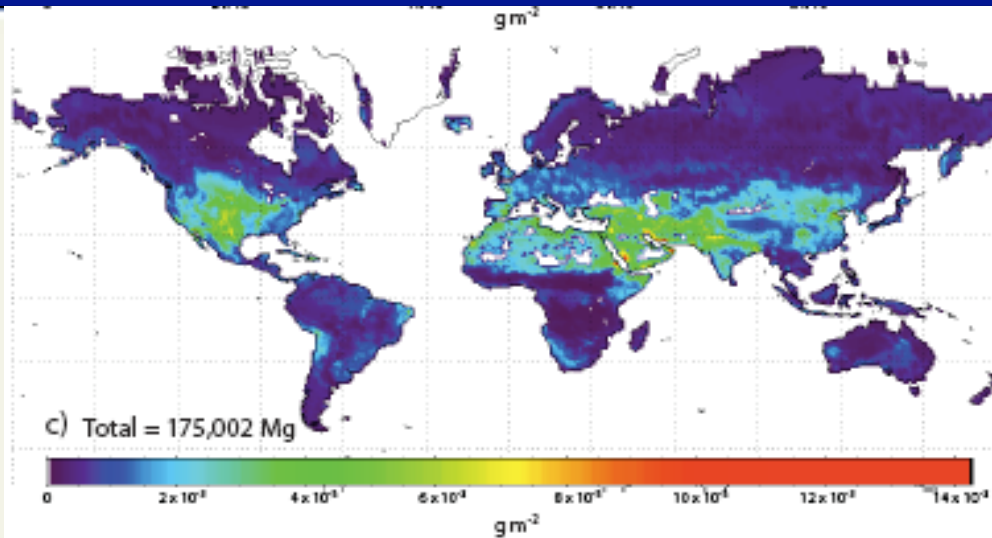
Global Terrestrial Mercury Model (GTMM)

Ecosystem carbon dynamics from the CASA biogeochemical model



Source: Smith-Downey and Jacob, *JGR-Biogeosciences*, In-prep

Soil Hg Storage



Pre-industrial soil
Hg storage
175,000 Mg

Contemporary soil Hg
storage
220,000 Mg
~25% enrichment from
anthro. sources globally

