

The Ocean's Effect on Atmosphere Heat Transport

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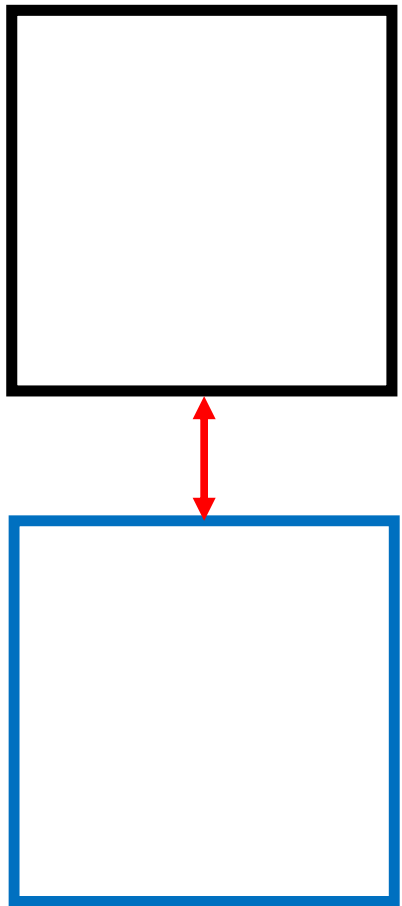
Jian Lu



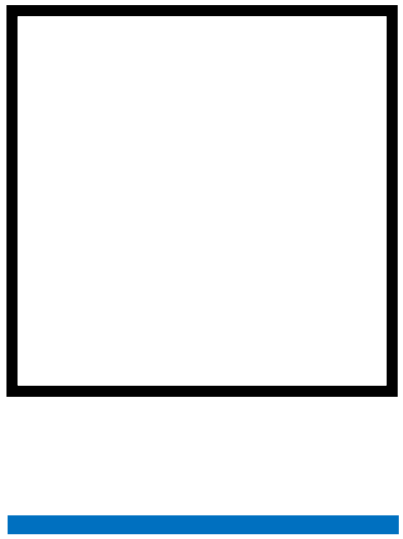
U.S. DEPARTMENT OF
ENERGY

**Regional & Global Climate
Modeling (RGCM) Program**

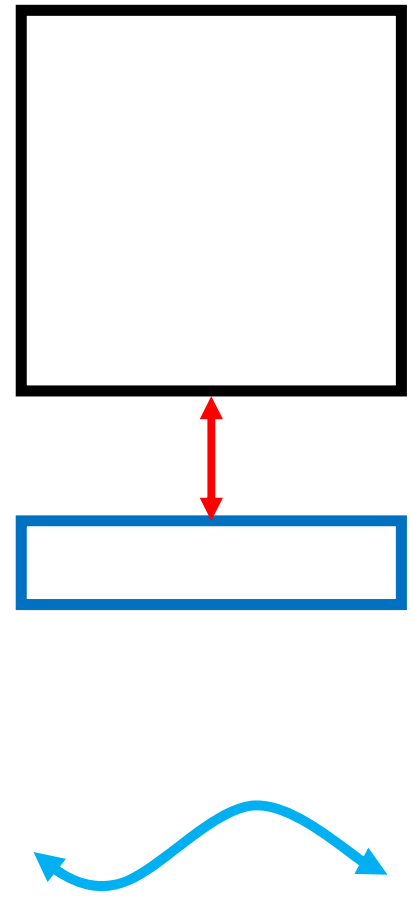
Full Ocean



Atmosphere Only



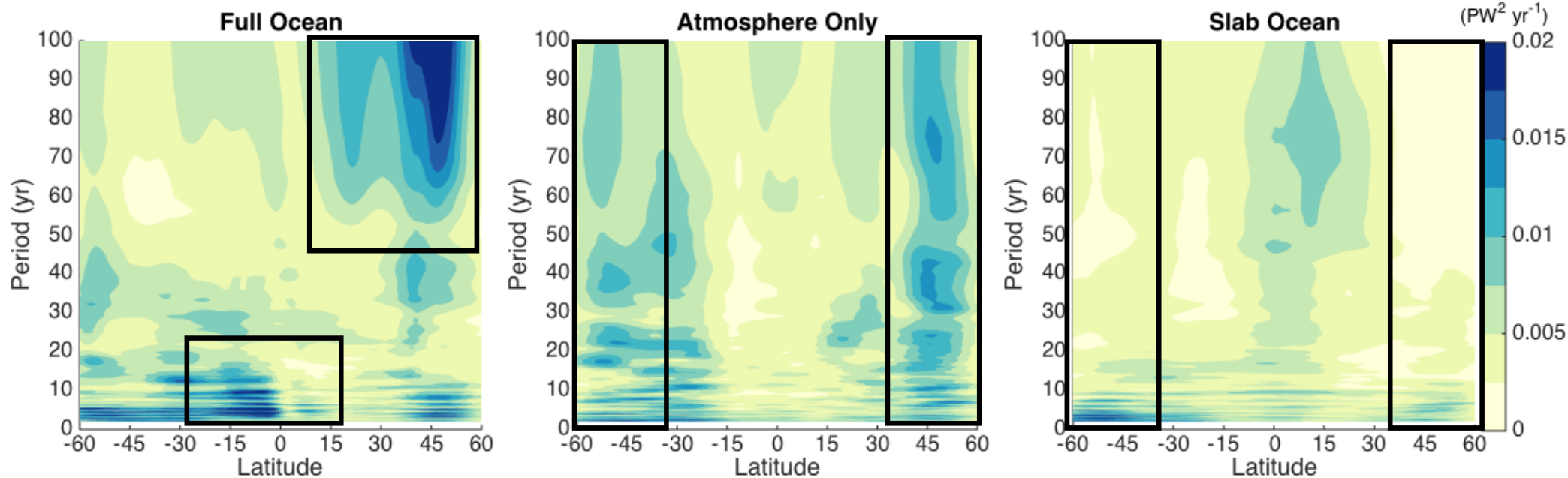
Slab Ocean



Atmosphere Heat Transport

$$\frac{\partial AHT}{\partial y} \approx F_{TOA} - F_{SFC}$$

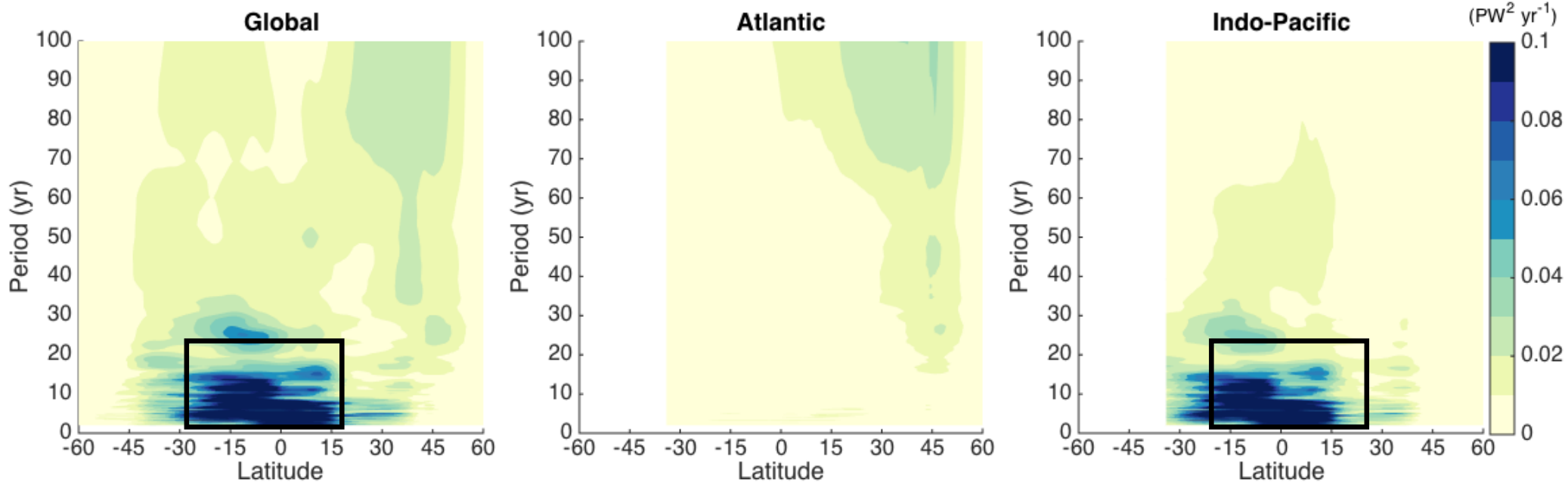
AHT Auto-Spectral Density



Ocean Heat Transport

$$\frac{\partial OHT}{\partial y} \approx F_{SFC} - \frac{\partial OHC}{\partial t}$$

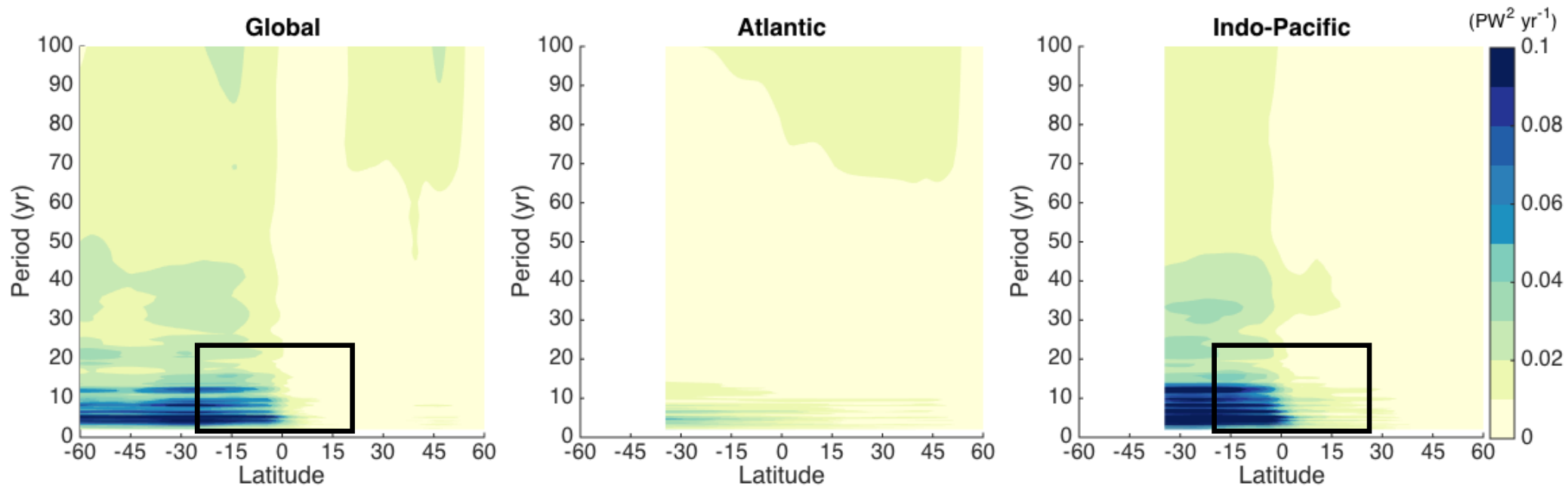
OHT Auto-Spectral Density



Surface flux component of OHT

$$\frac{\partial OHT}{\partial y} \approx F_{SFC} - \frac{\partial OHC}{\partial t}$$

Indirect OHT Auto-Spectral Density



Ocean heat content component of OHT

$$\frac{\partial OHT}{\partial y} \approx F_{SFC} - \frac{\partial OHC}{\partial t}$$

$\partial OHC / \partial t$ Auto-Spectral Density

