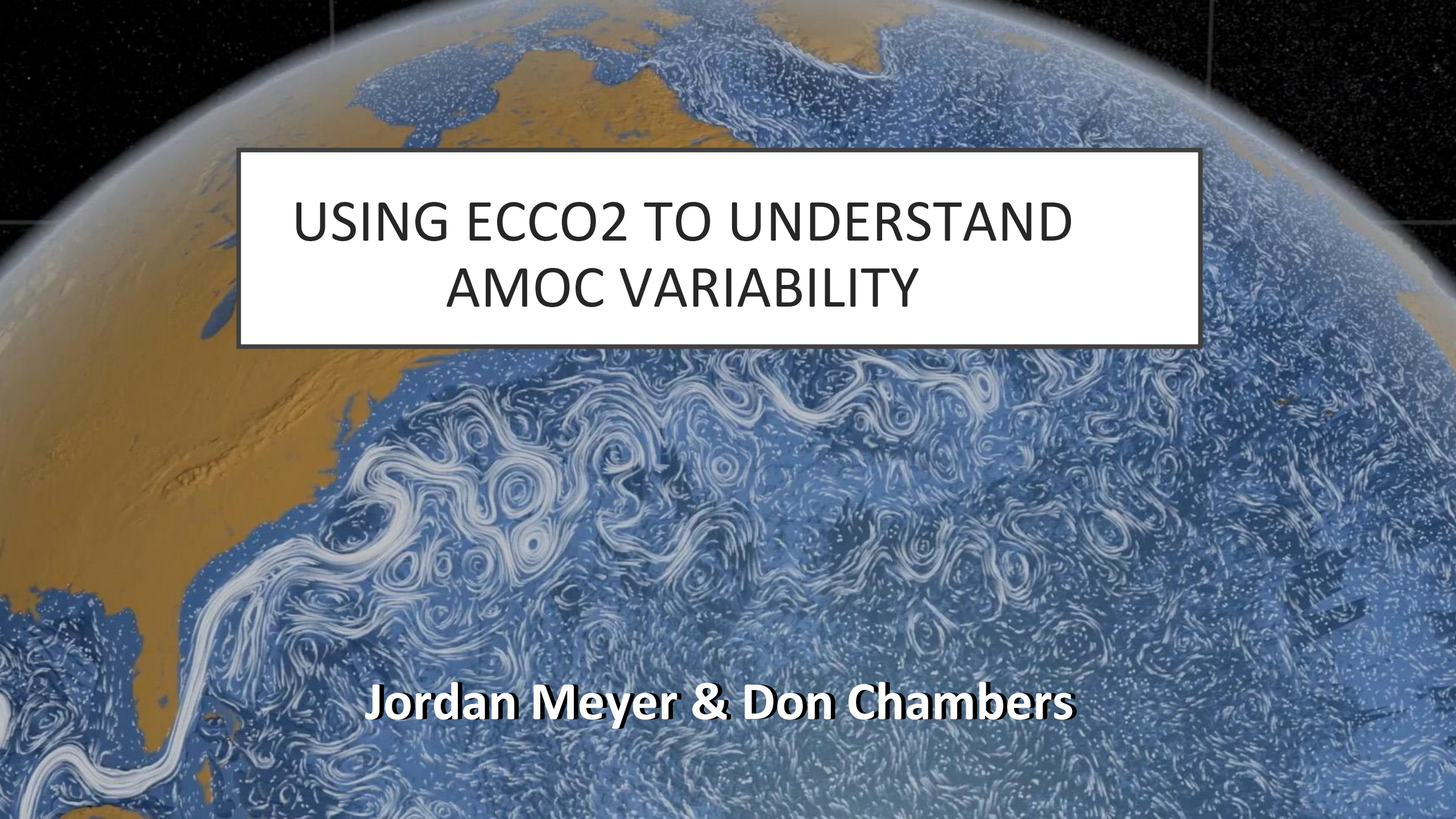
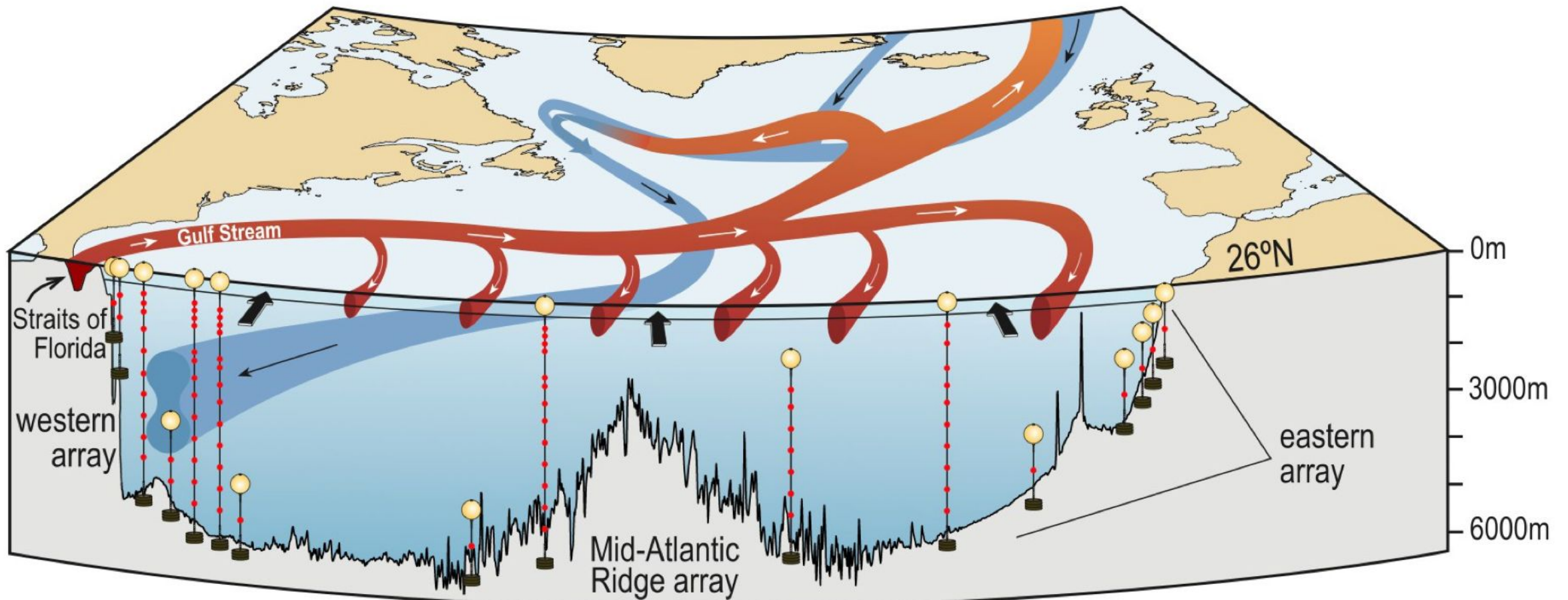


The background of the slide is a satellite image of Earth, showing the Atlantic Ocean and parts of North and South America. The ocean is a deep blue, and the continents are a light tan color. The image is taken from a high angle, showing the curvature of the Earth.

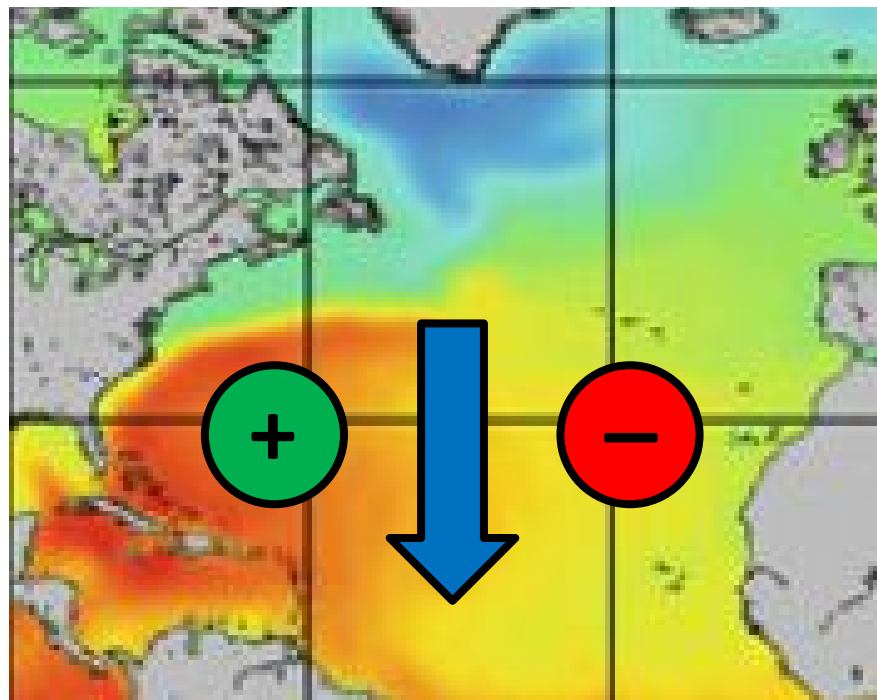
USING ECCO2 TO UNDERSTAND AMOC VARIABILITY

Jordan Meyer & Don Chambers

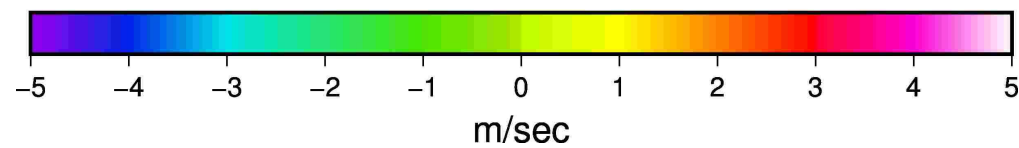
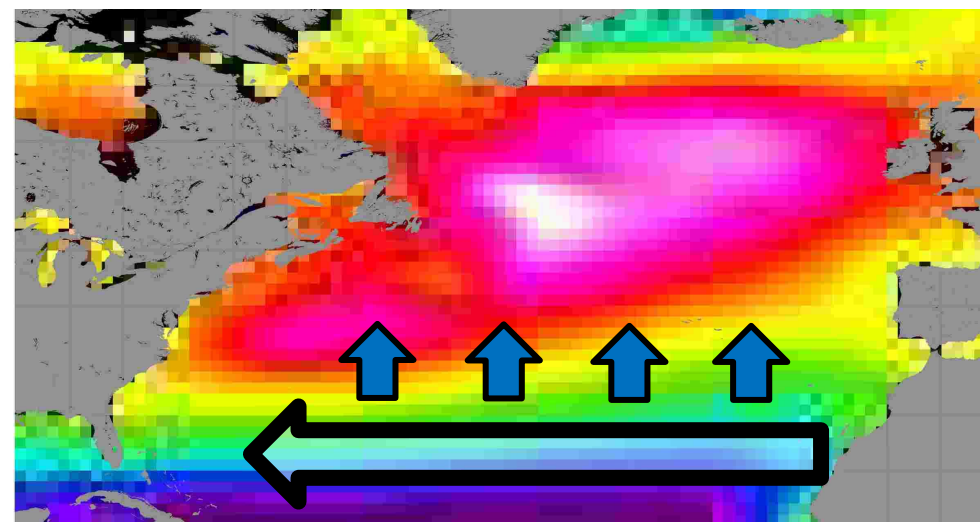
ATLANTIC MERIDIONAL OVERTURNING CIRCULATION (AMOC)



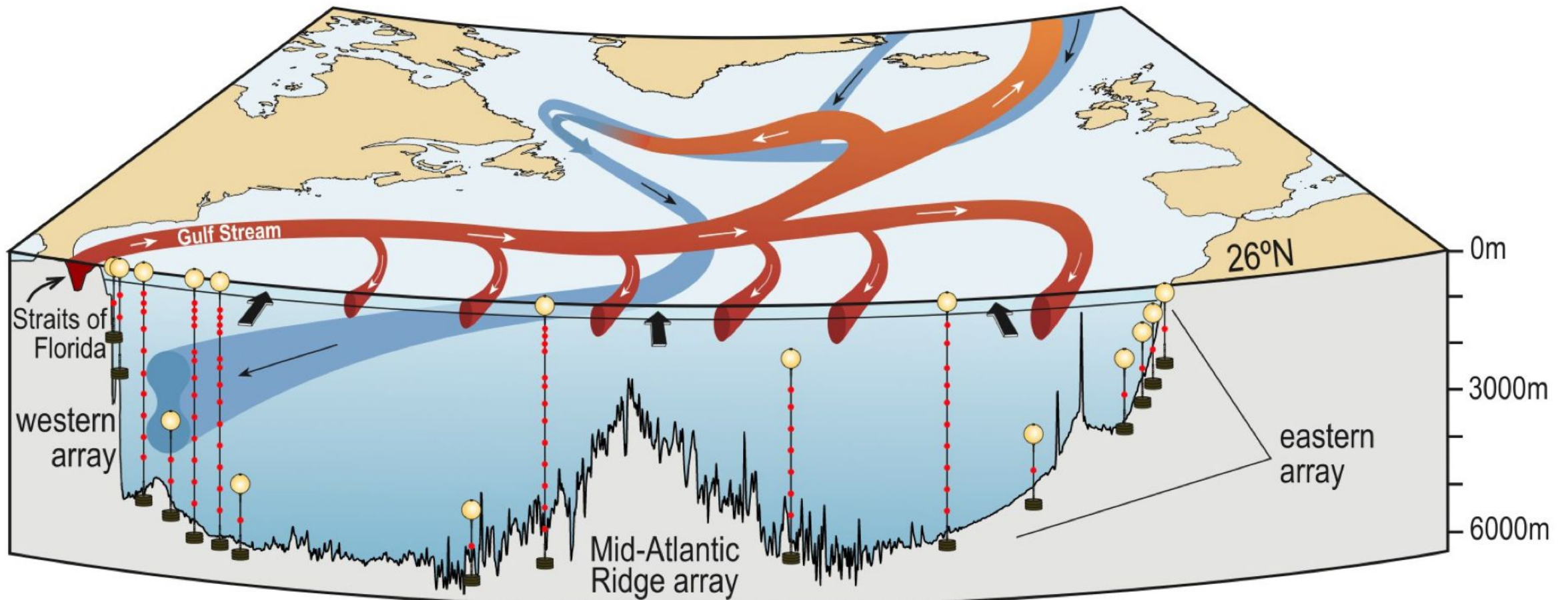
Dynamic Topography



Average Zonal Wind



ATLANTIC MERIDIONAL OVERTURNING CIRCULATION (AMOC)

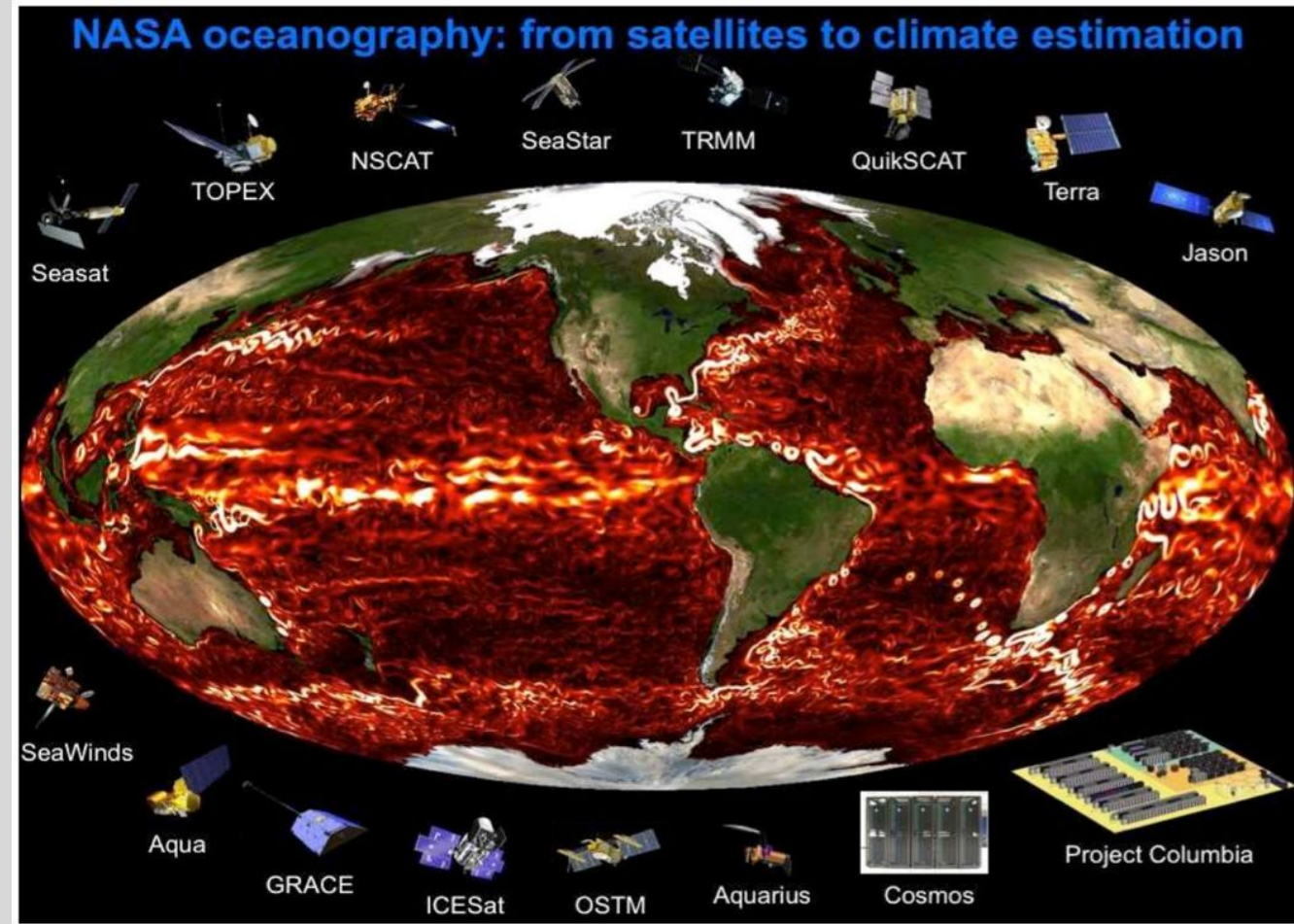




ECCO2

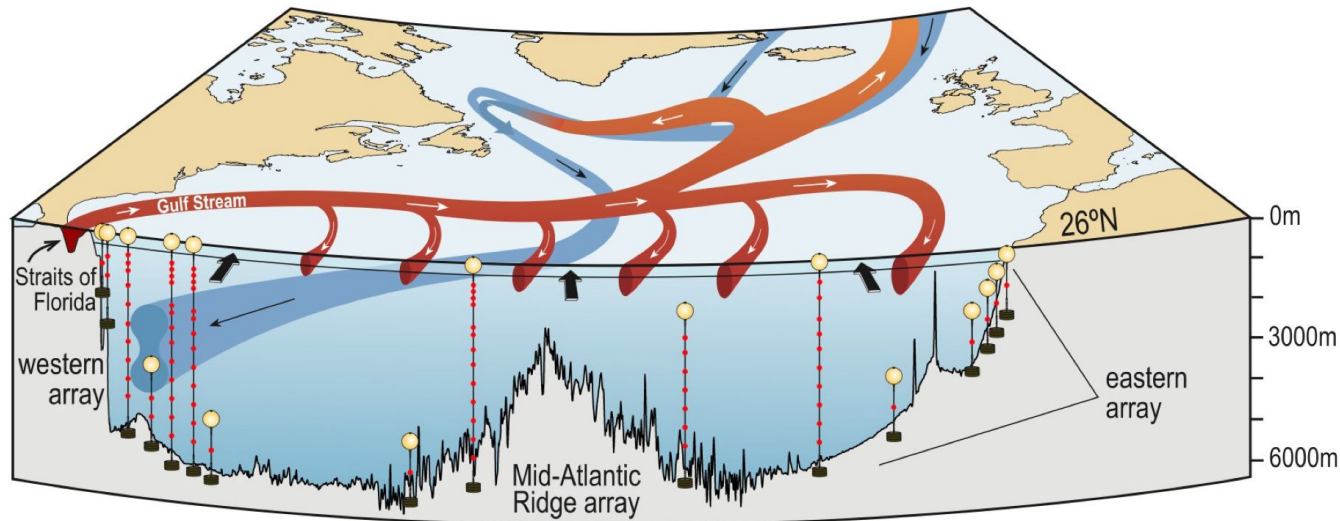
ESTIMATING THE CIRCULATION AND CLIMATE OF THE OCEAN, PHASE II:
HIGH RESOLUTION GLOBAL-OCEAN AND SEA-ICE DATA SYNTHESIS

- High resolution state estimate
 - $\frac{1}{4}^\circ \times \frac{1}{4}^\circ$ Grid
 - 50 Depth Levels
 - 3 Day Intervals
- Incorporates satellite and in-situ measurements
- Eddy permitting

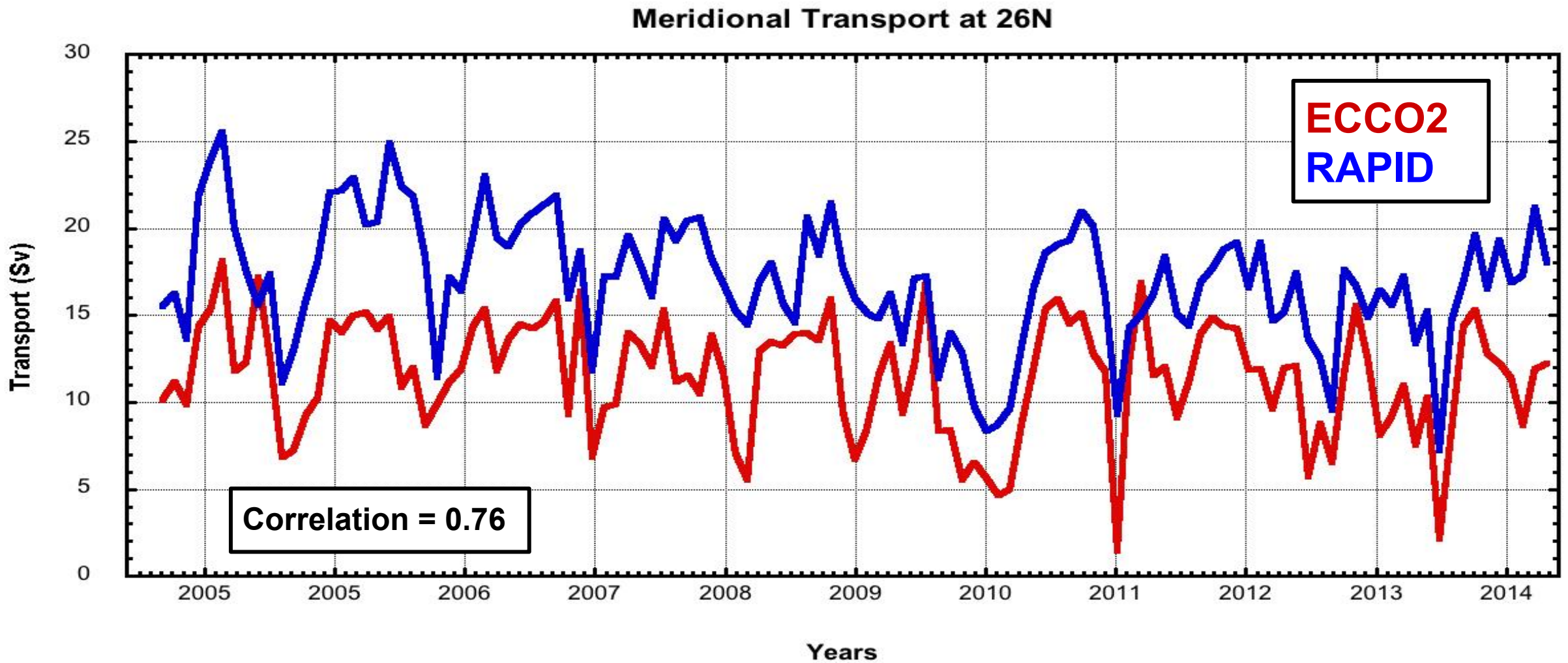




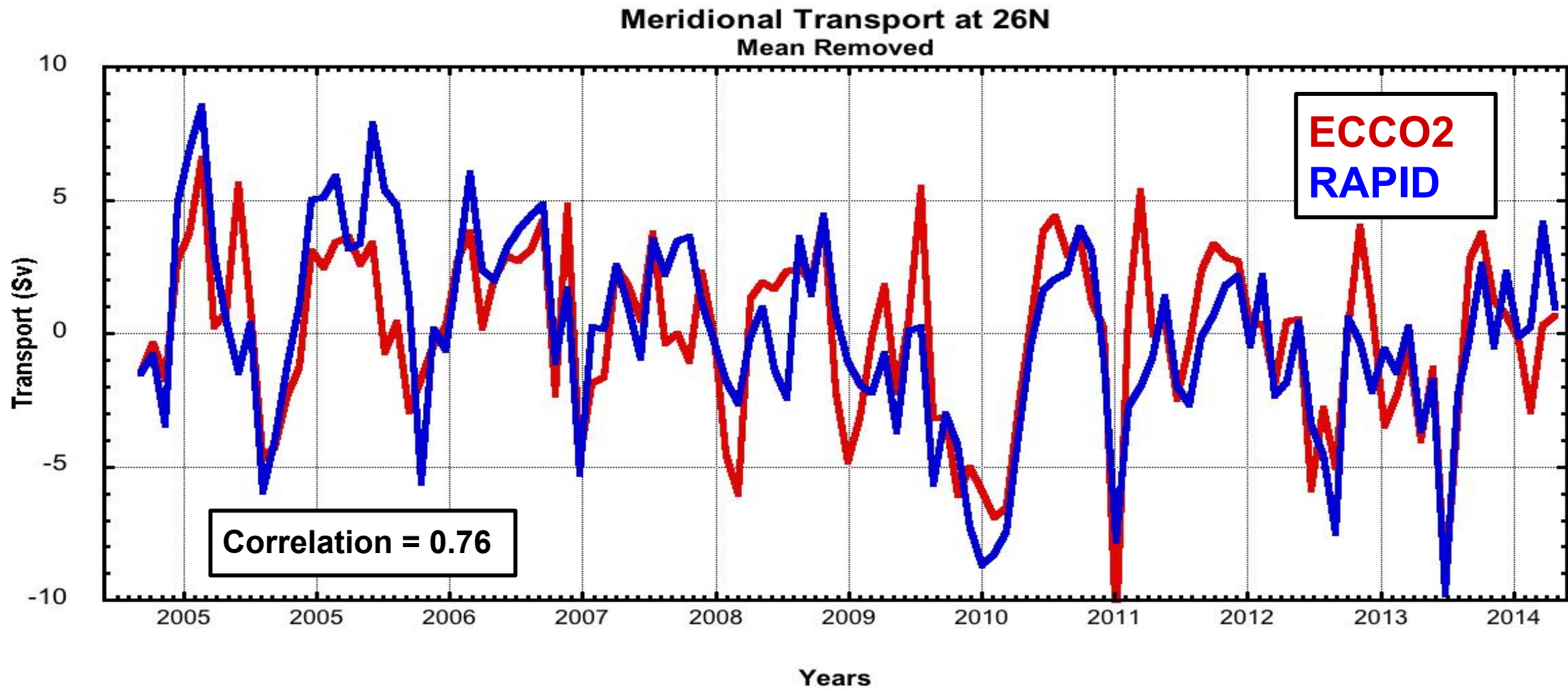
RAPID-AMOC



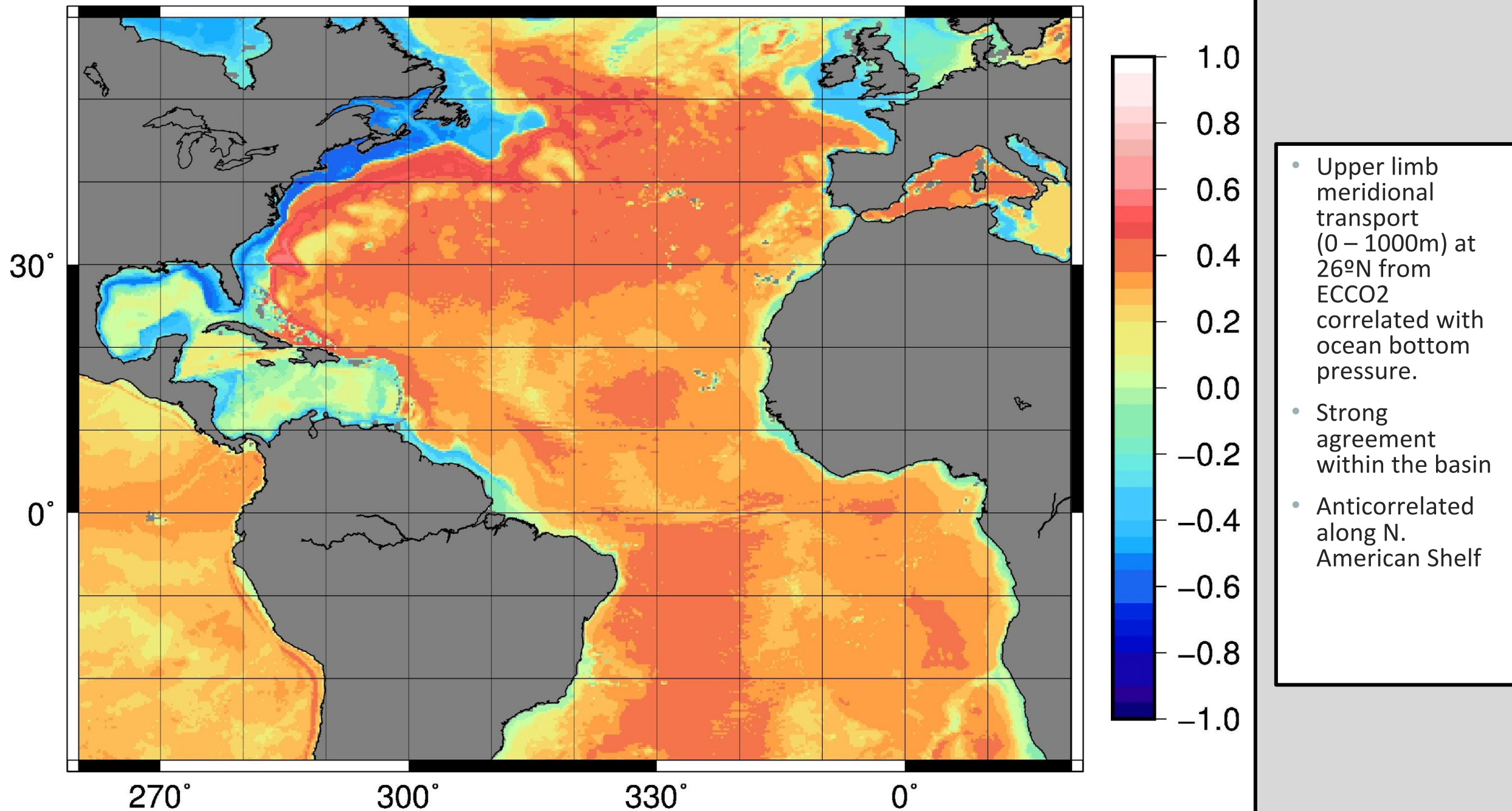
- Long running monitor of AMOC
 - 2004 - present
- Series of moorings across Atlantic basin at 26° N
- Salinity, temperature and current velocity measured from near surface to depth
- AMOC estimate combines RAPID data with Florida current and surface wind measurements



- Time series of stream function maximum calculated at 26° N for ECCO2 integrated across the Atlantic basin.
- Plotted alongside the RAPID stream function maximum.
- RAPID and ECCO2 show different magnitudes but variability is highly correlated.



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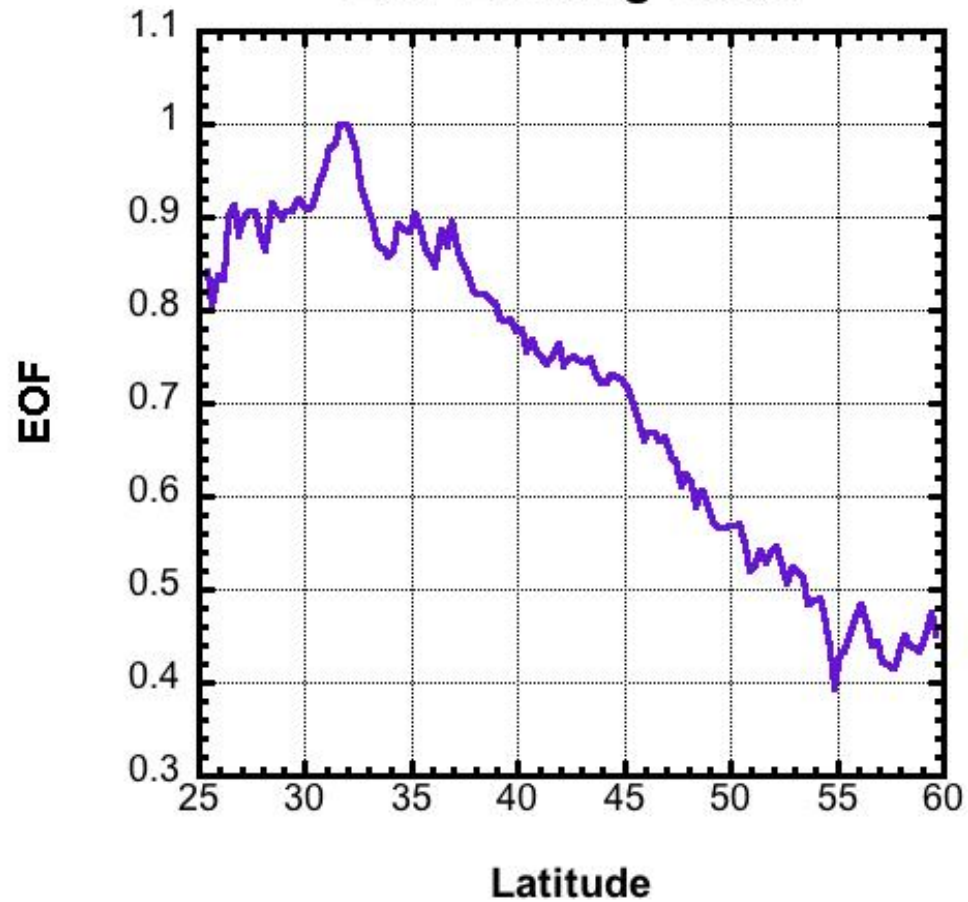


PRINCIPAL COMPONENT ANALYSIS

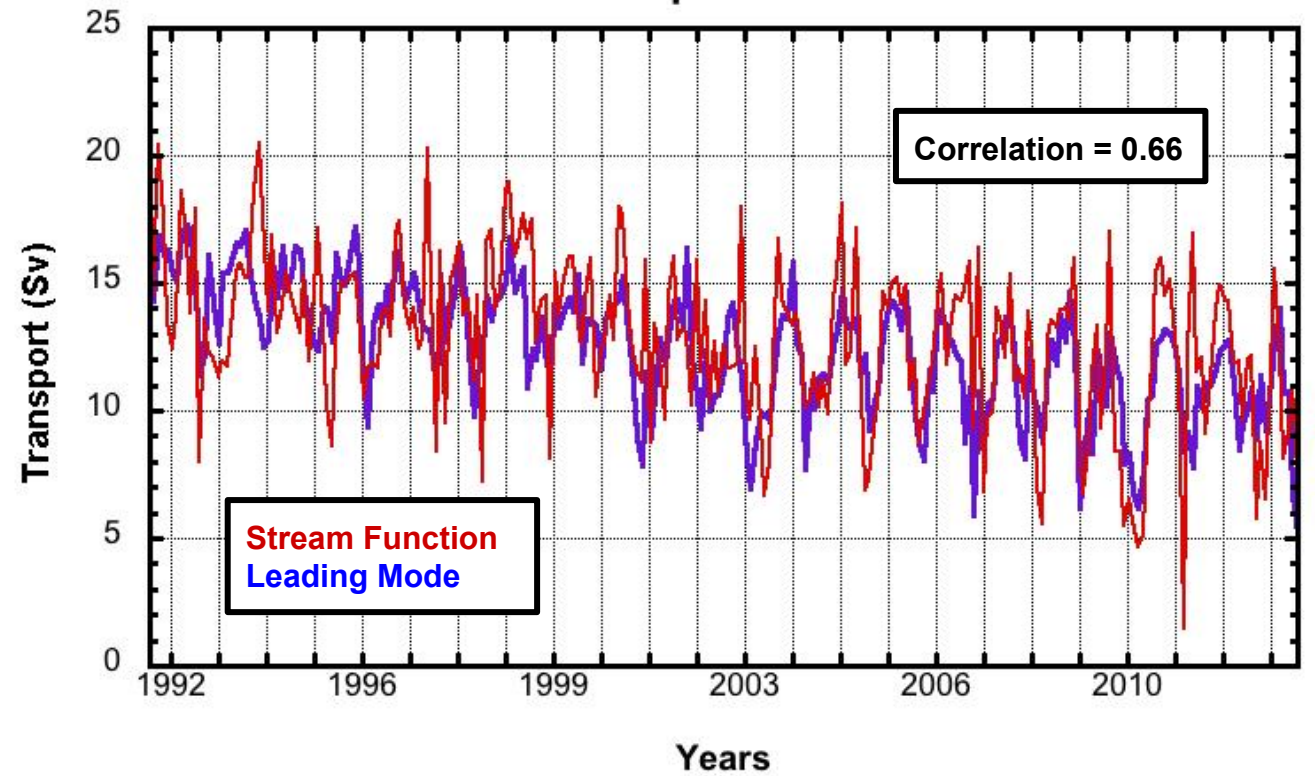
- Calculated cross-basin upper limb meridional transport at each latitude
- Performed principal components to determine normalized EOFs vs latitude
- Calculated transport time series using leading mode at 26° N
 - Plotted against stream function time series

PRINCIPAL COMPONENT ANALYSIS

EOF Leading Mode



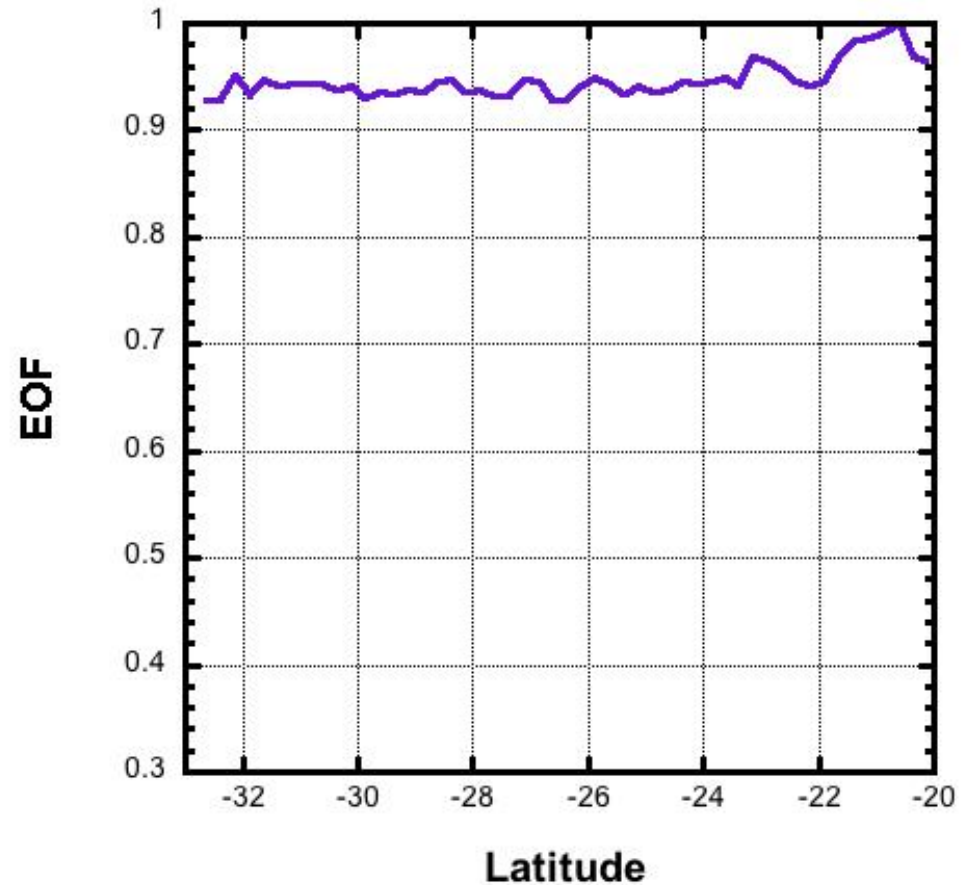
Transport at 26N



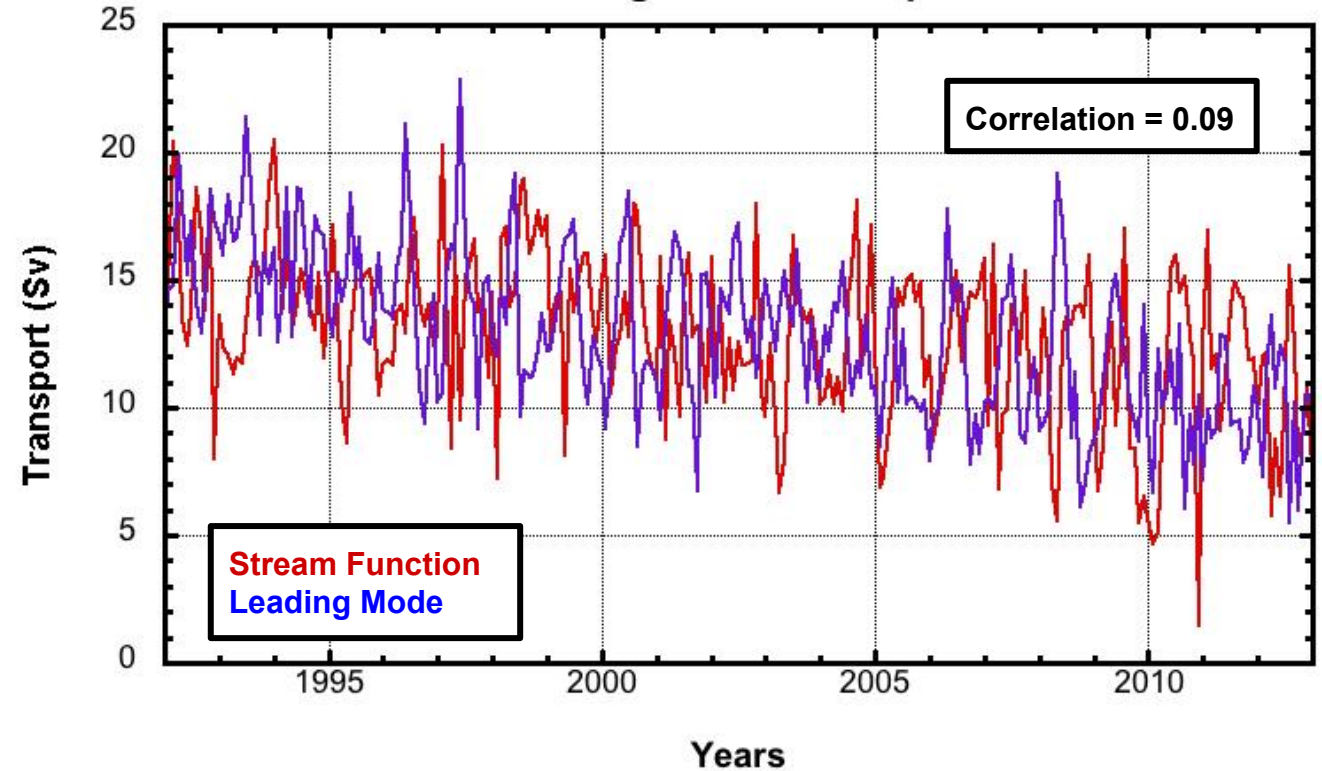
PRINCIPAL COMPONENT ANALYSIS

South Atlantic

EOF Leading Mode



Leading Mode Transport



Thank You!