gcmfaces analysis of ECCO V4, Release 3

October 19, 2017

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This document contains a set of analysis plots for ECCO Version 4, Release 3 (v4r3).
The plots are generated using the Matlab analysis toolbox gcmfaces
(http://wwwcvs.mitgcm.org/viewvc/MITgcm/MITgcm_contrib/gael/matlab_class/gcmfaces.pdf?view=co).
Although it is not exhaustive, this document provides a convenient visual description
of v4r3 for users.

ECCO v4r3 is available at ftp://ecco.jpl.nasa.gov/Version4/Release3/. ECCO v4r3 was produced
using MITgcm version checkpoint66g. There are a few documents
in ./doc/ that gives an overview description of what v4r3 is, a summary of the state
estimte, how to reproduce v4r3, how to close budget, as well as this document
that gives a depiction of the results.

References:
Forget, G., J.-M. Campin, P. Heimbach, C. N. Hill, R. M. Ponte, and C. Wunsch, 2015:
ECCO version 4: an integrated framework for non-linear inverse modeling and global
ocean state estimation. Geoscientific Model Development, 8, 3071-3104, doi:10.5194/gmd-8-3071-2015
Forget, G., J.-M. Campin, P. Heimbach, C. N. Hill, R. M. Ponte,
and C. Wunsch, 2016: ECCO version 4: Second Release, http://hdl.handle.net/1721.1/102062

fit to in situ data

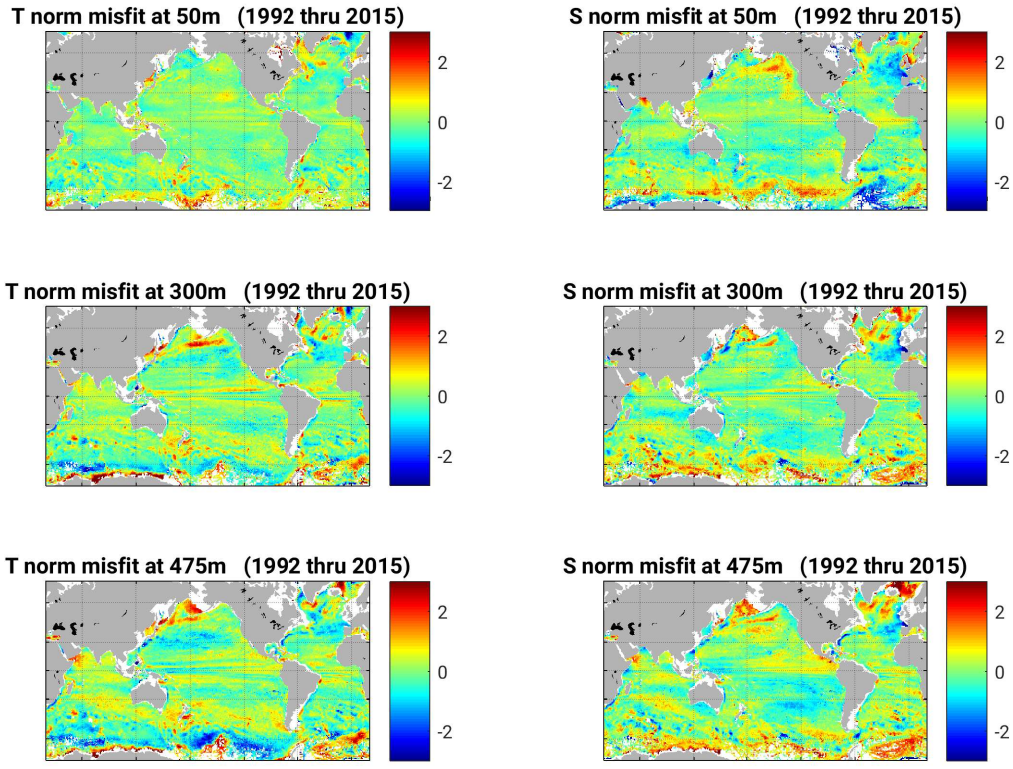


Figure: Time mean normalized misfit (*model* − *data*)/*sigma* for in situ profiles, at depths (rows), for T (left) and S (right).

fit to in situ data

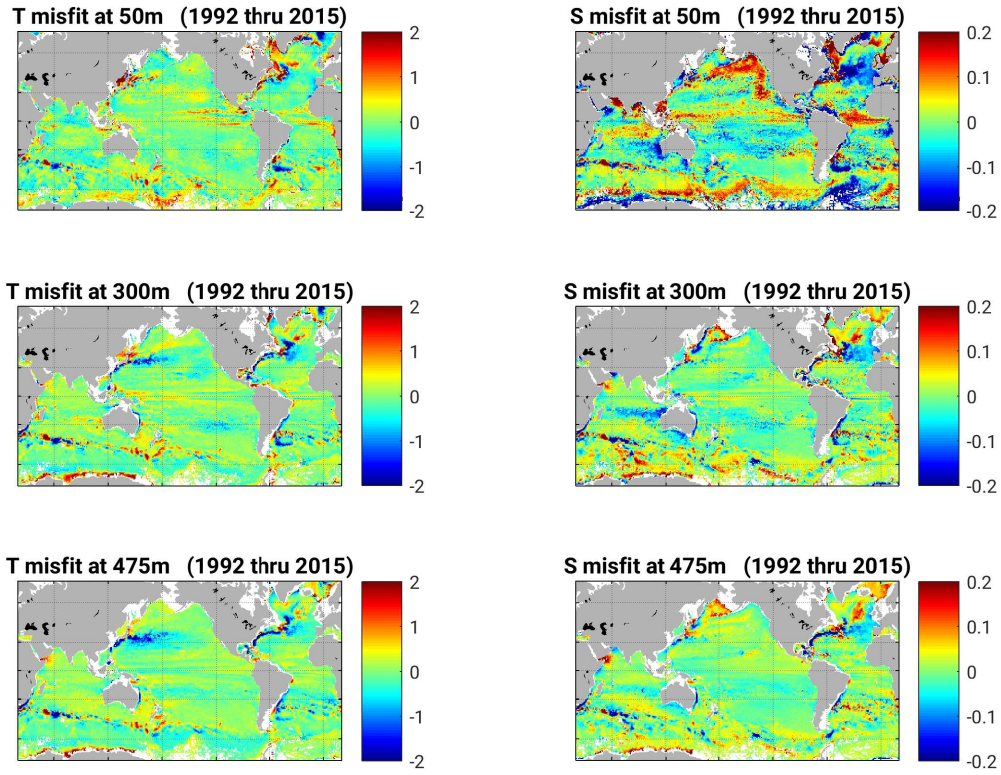


Figure: Time mean misfit (*model* – *data*) for in situ profiles, at depths (rows), for T (left; K) and S (right; in psu).

fit to in situ data

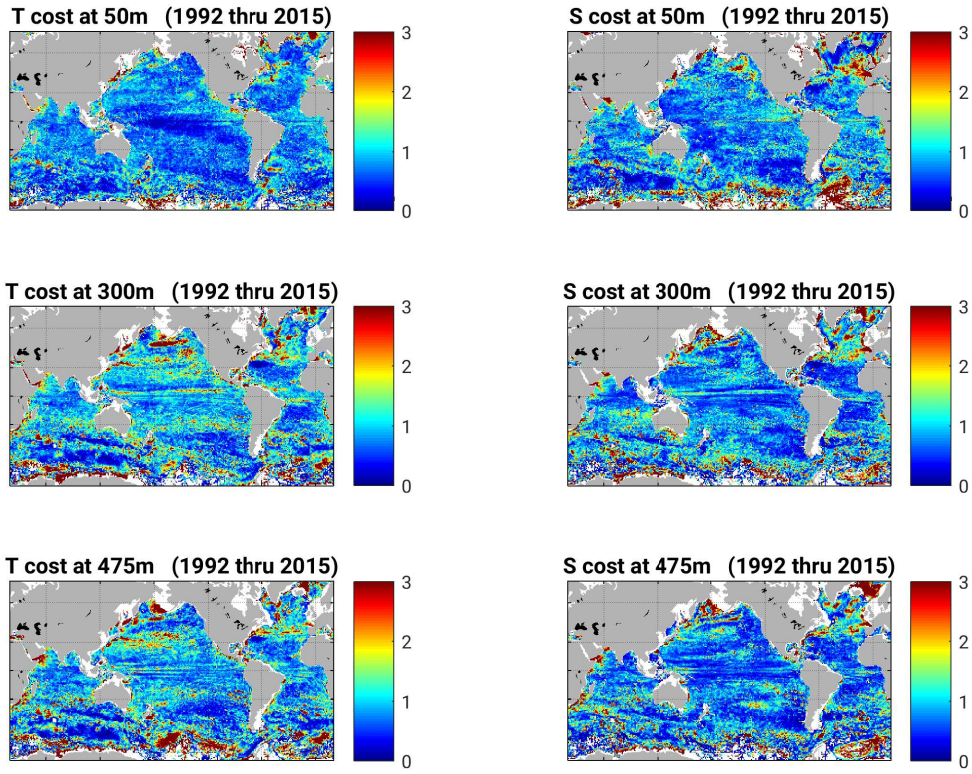
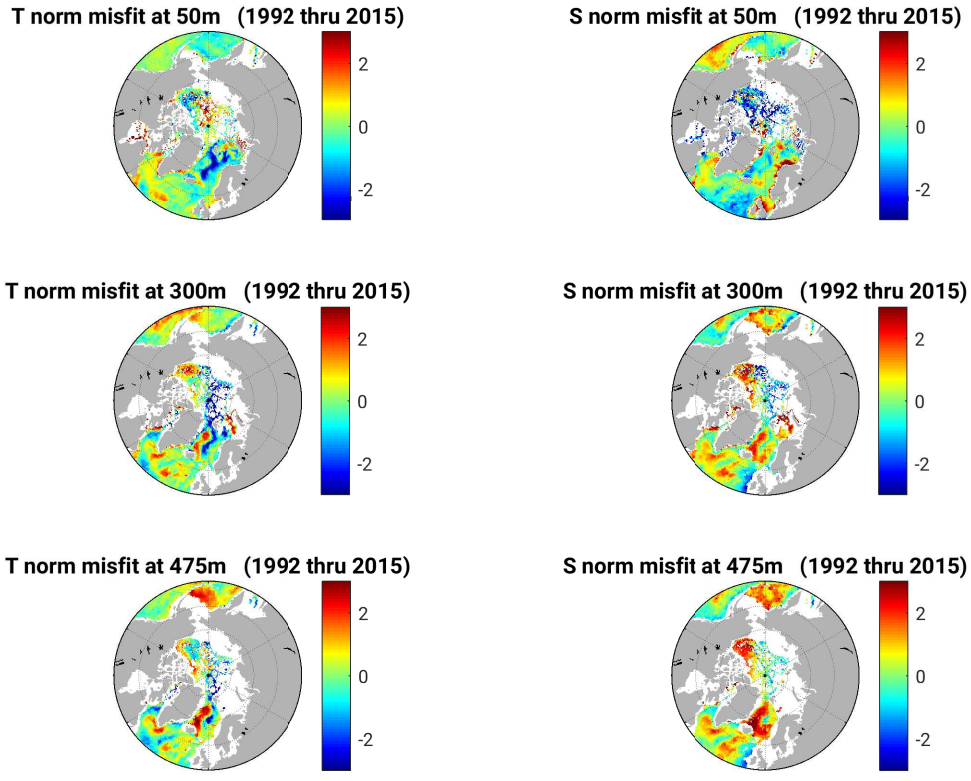


Figure: Time mean cost $(model - data)^2/sigma^2$ for in situ profiles, at depths (rows), for T (left) and S (right).

fit to in situ data



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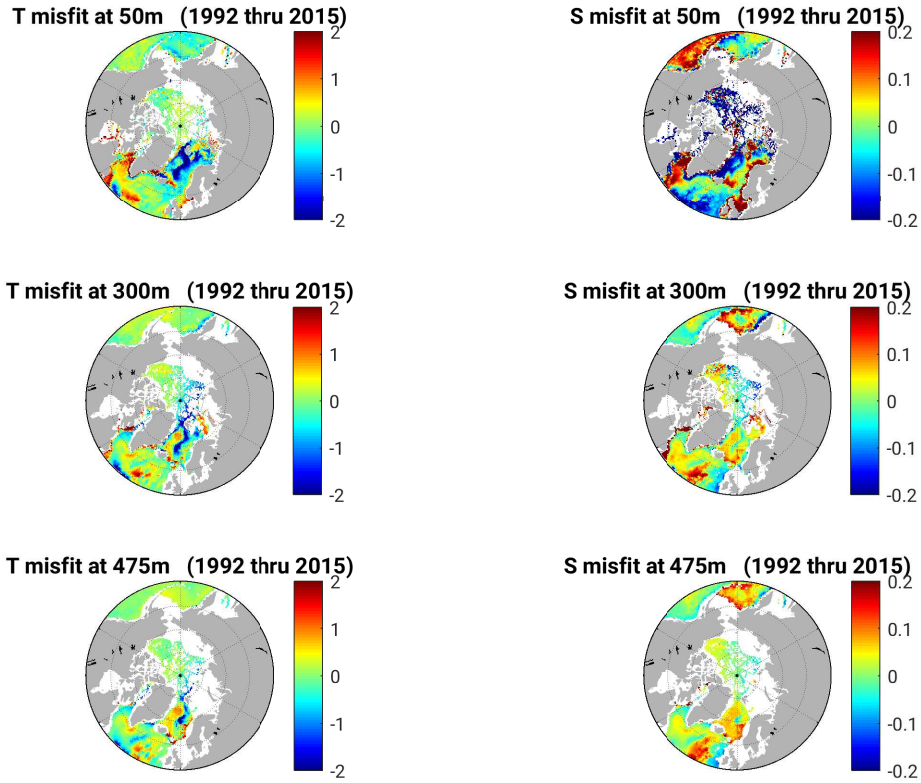

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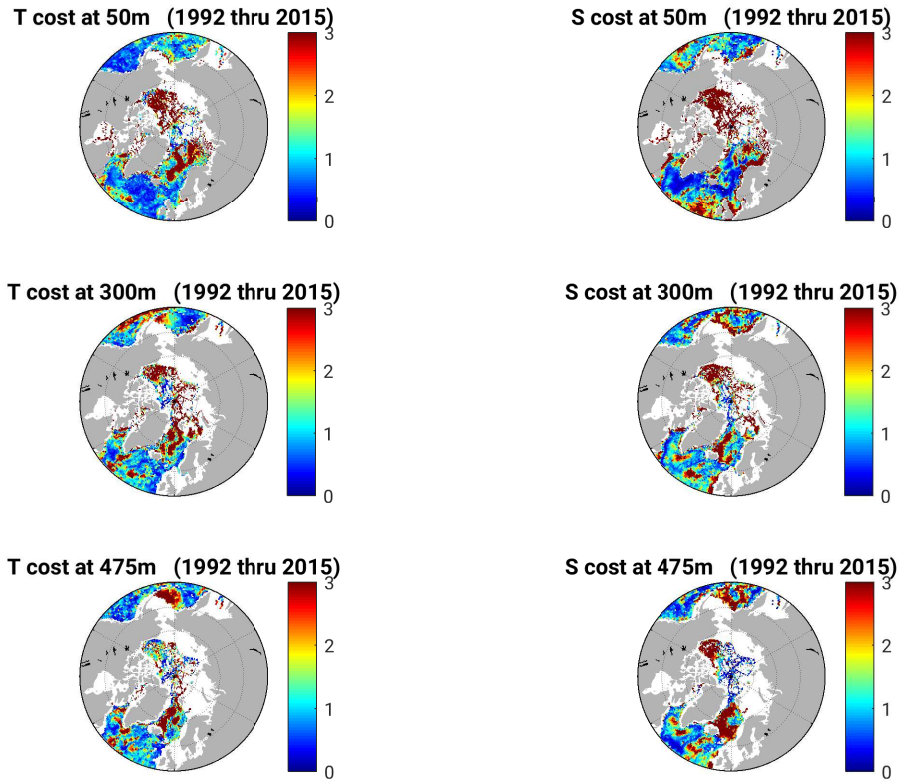
fit to in situ data



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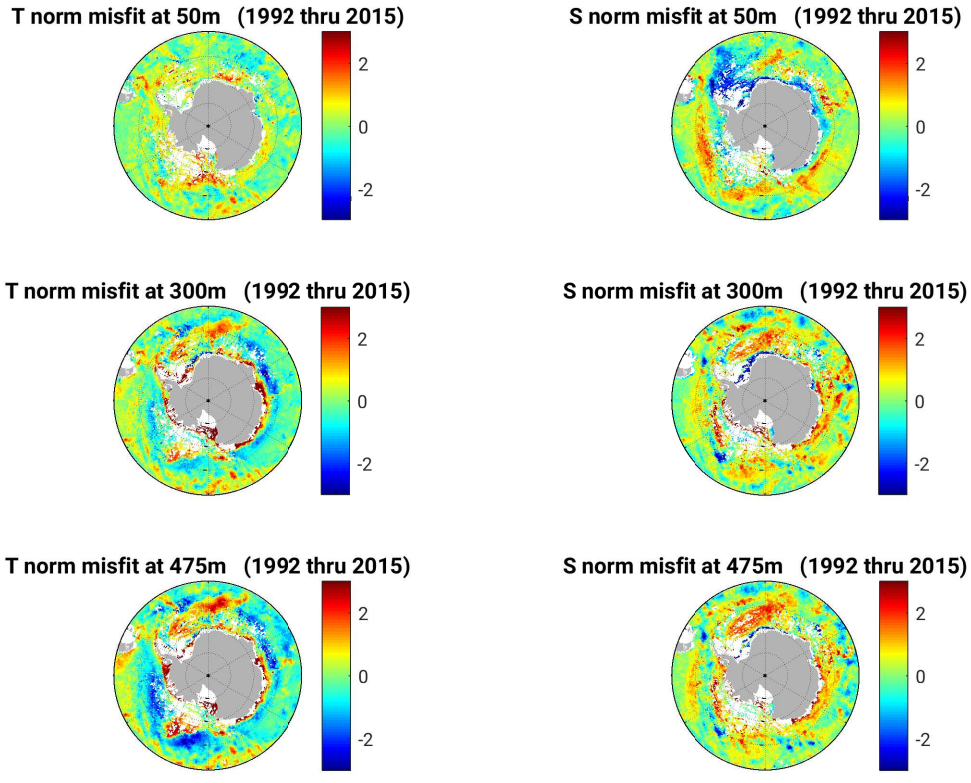

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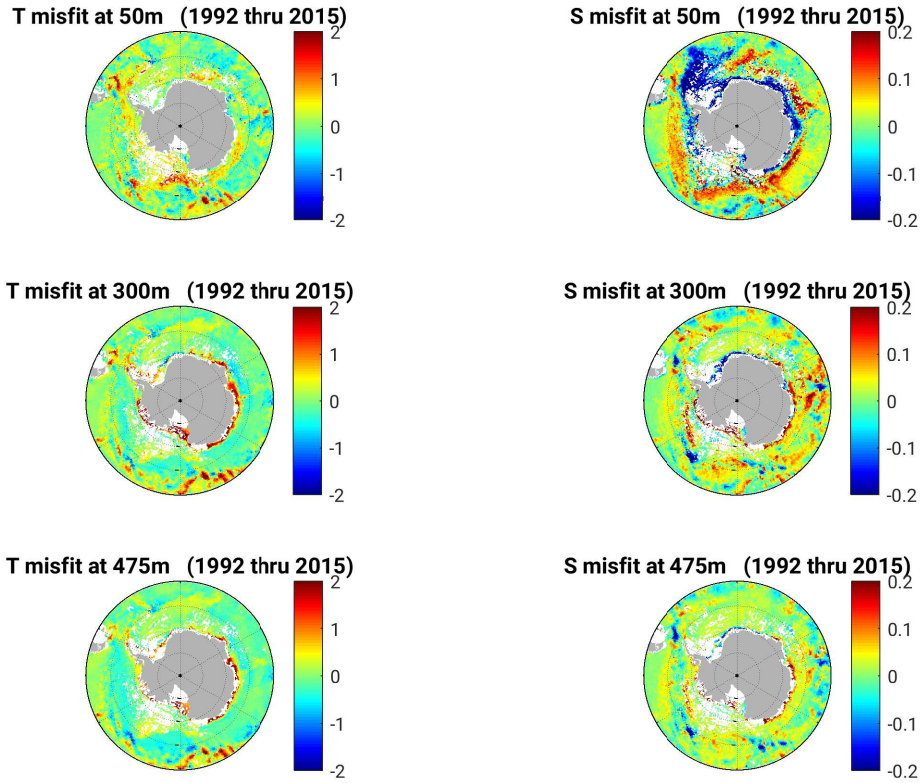

Figure: Time mean misfit (*model* – *data*) for in situ profiles, at depths (rows), for T (left; K) and S (right; in psu).

fit to in situ data

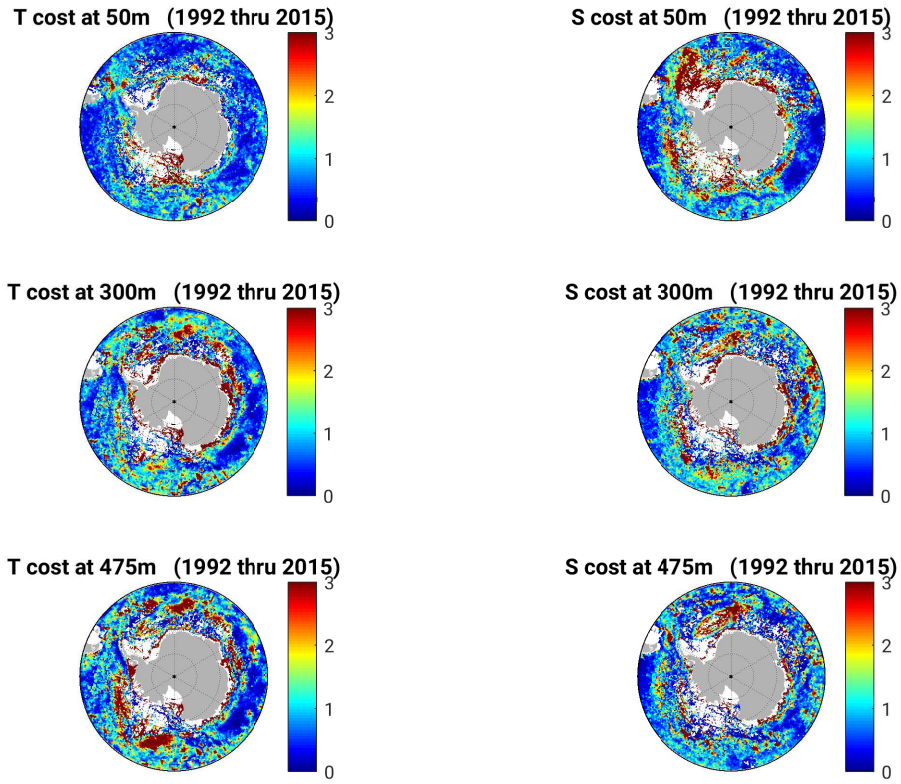

Figure: Time mean cost $(model - data)^2/sigma^2$ for in situ profiles, at depths (rows), for T (left) and S (right).

fit to altimeter data (RADS)

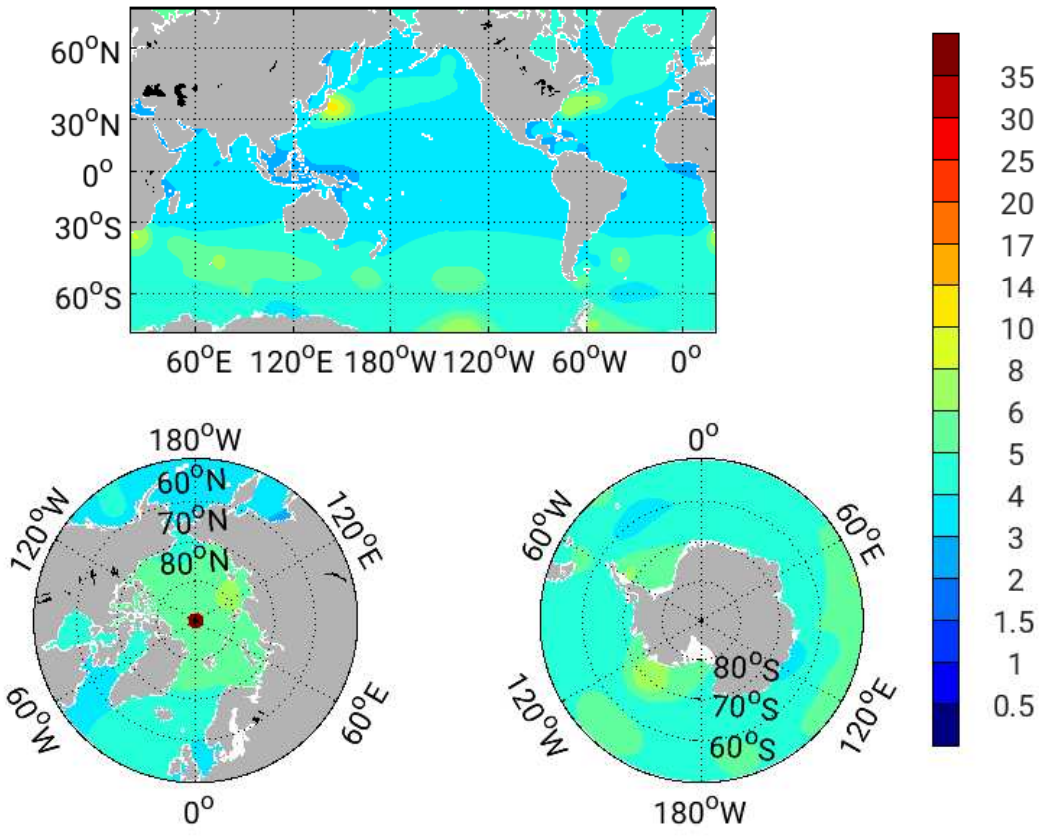

Figure: Mean Dynamic Topography Prior Uncertainty (cm)

fit to altimeter data (RADS)

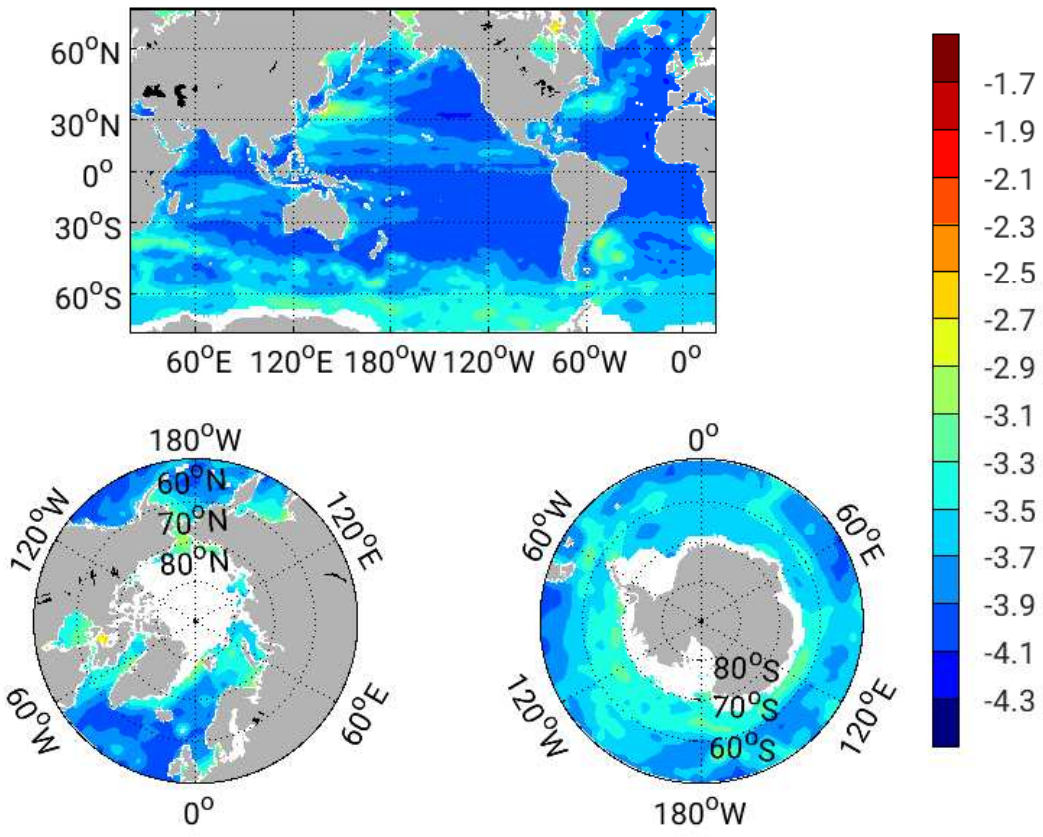

Figure: Sea Level Anomaly, Large Scale: log(prior error variance) (m^2)

fit to altimeter data (RADS)

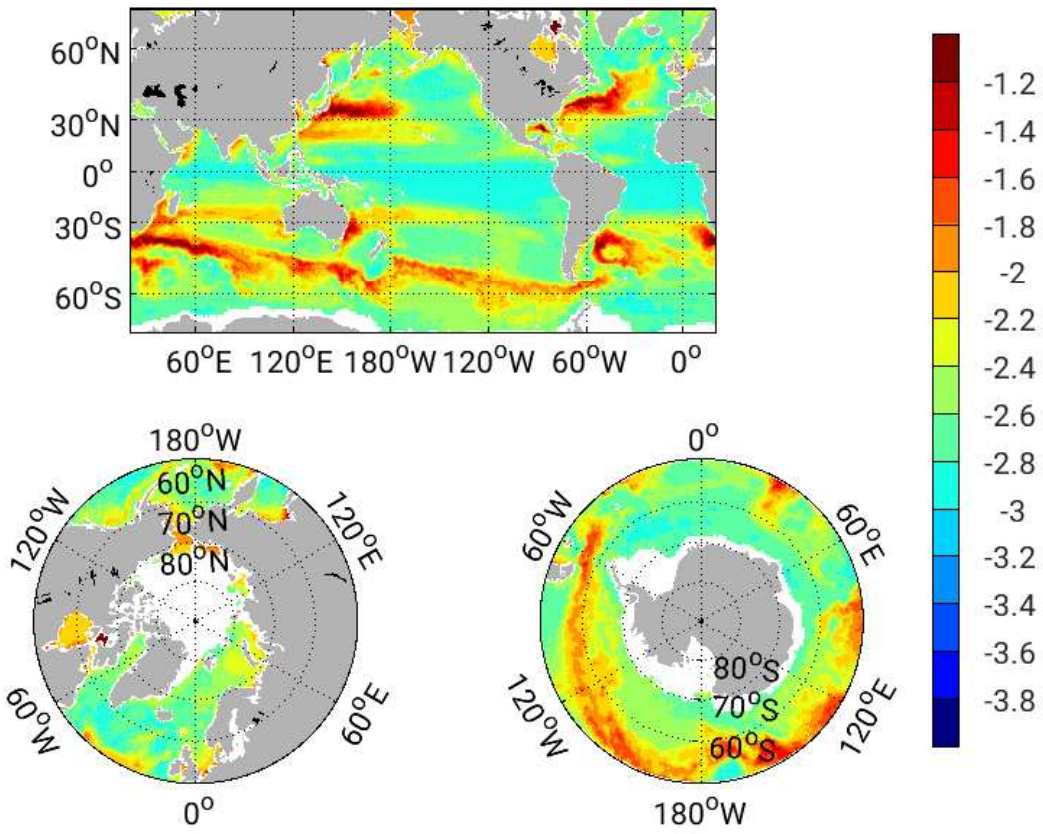

Figure: Sea Level Anomaly, Pointwise: log(prior error variance) (m^2)

fit to altimeter data (RADS)

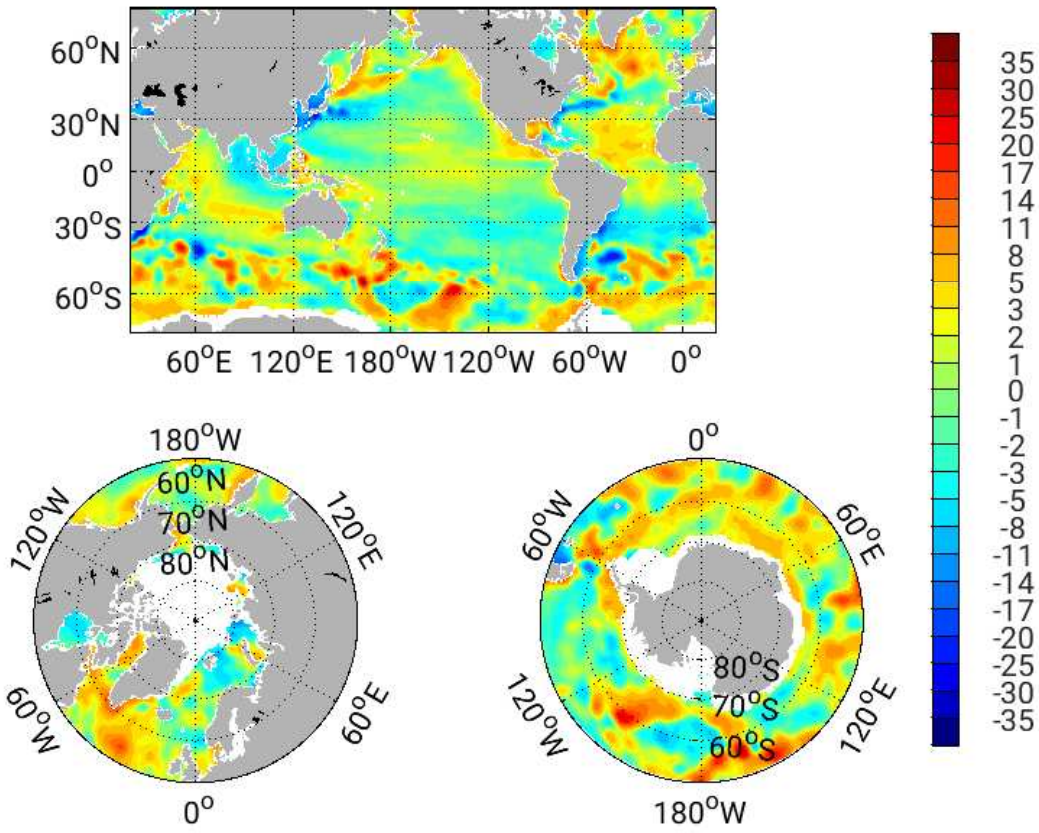

Figure: Mean Dynamic Topography Misfit (cm)

fit to altimeter data (RADS)

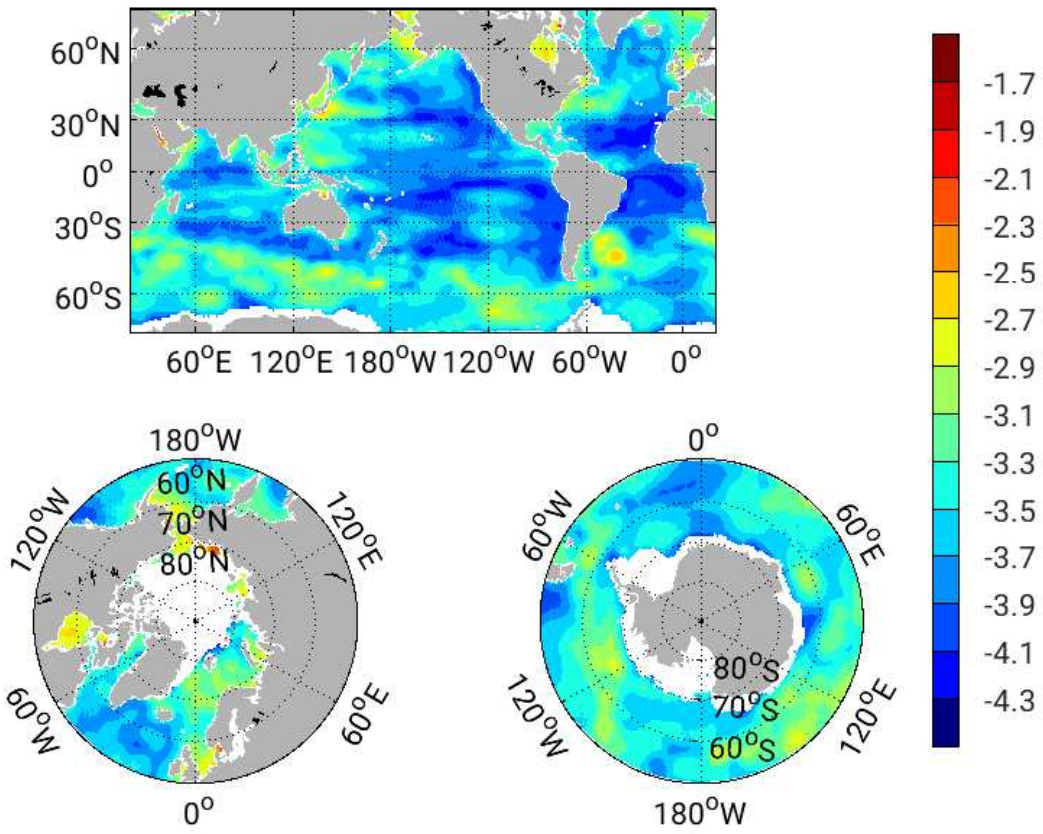

Figure: Sea Level Anomaly, Large Scale: Modeled-Data log(variance) (m^2)

fit to altimeter data (RADS)

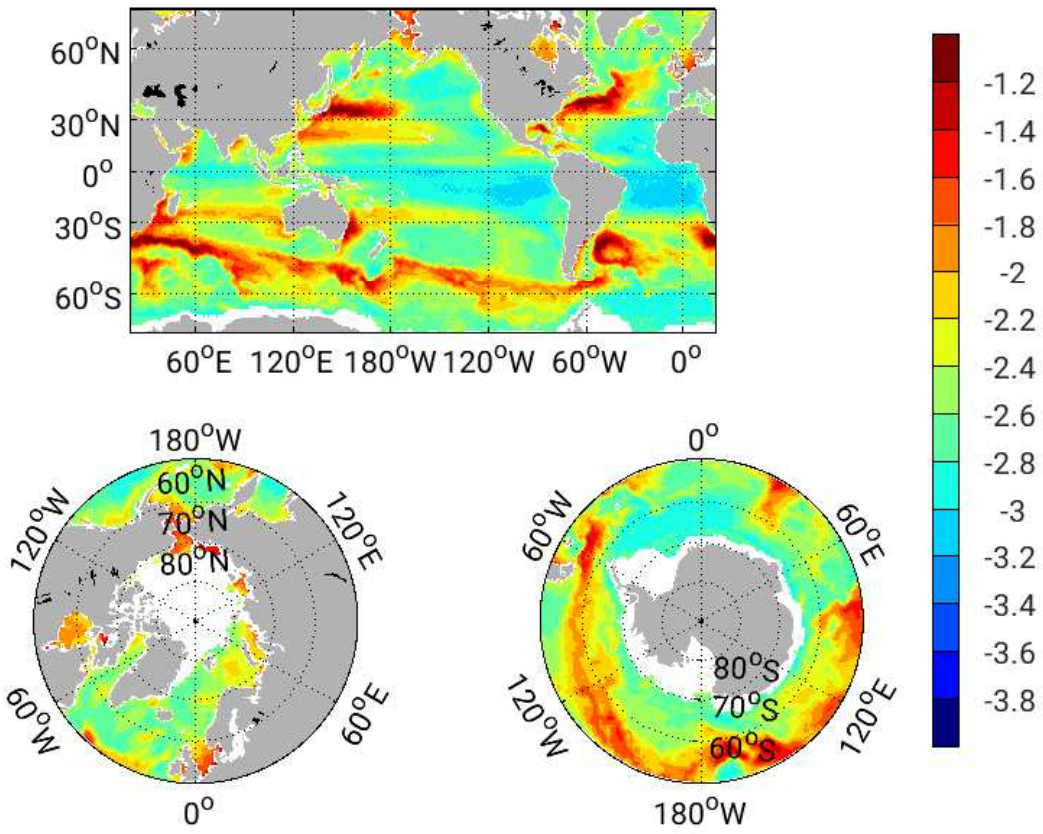

Figure: Sea Level Anomaly, Pointwise: Modeled-Data log(variance) (m^2)

fit to altimeter data (RADS)

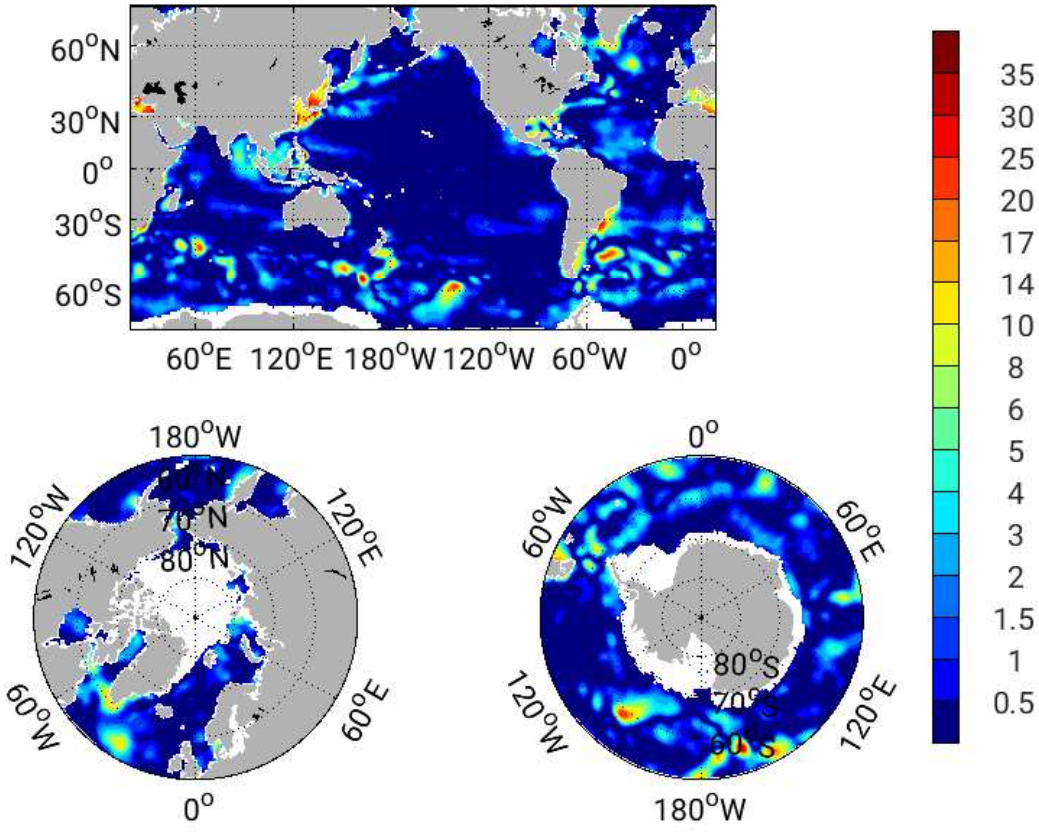

Figure: Mean Dynamic Topography: Modeled-Data Cost

fit to altimeter data (RADS)

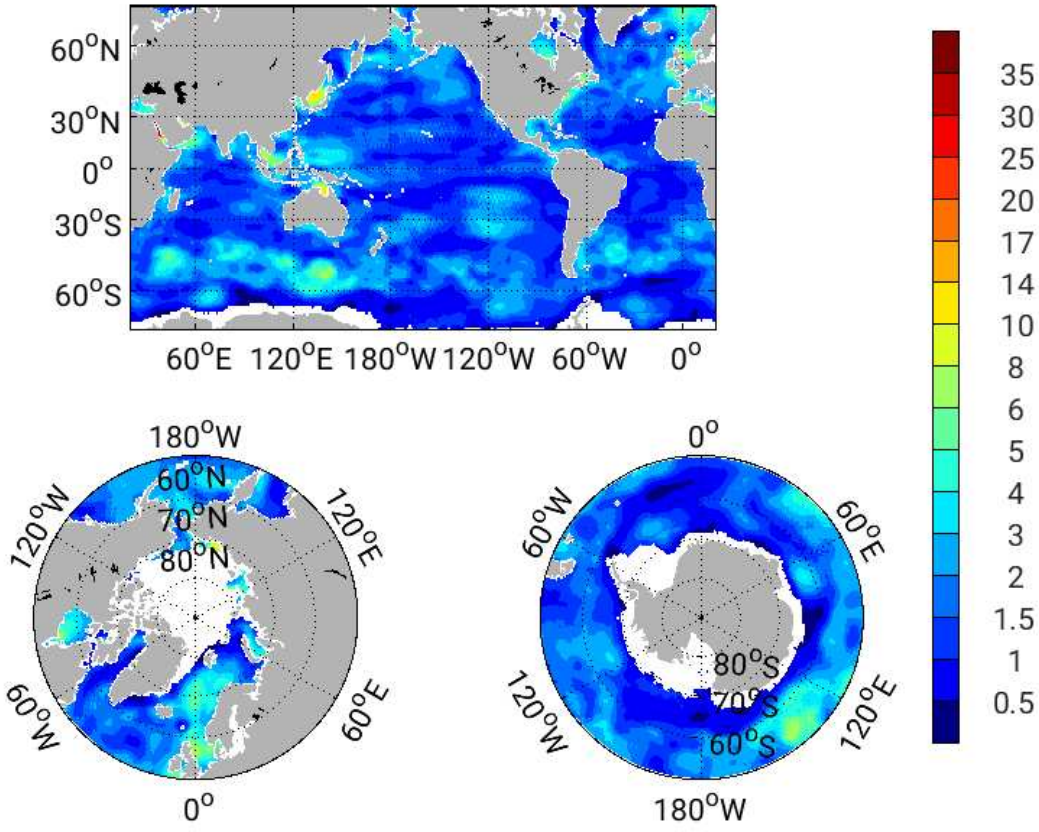

Figure: Sea Level Anomaly, Large Scale: Modeled-Data Cost

fit to altimeter data (RADS)

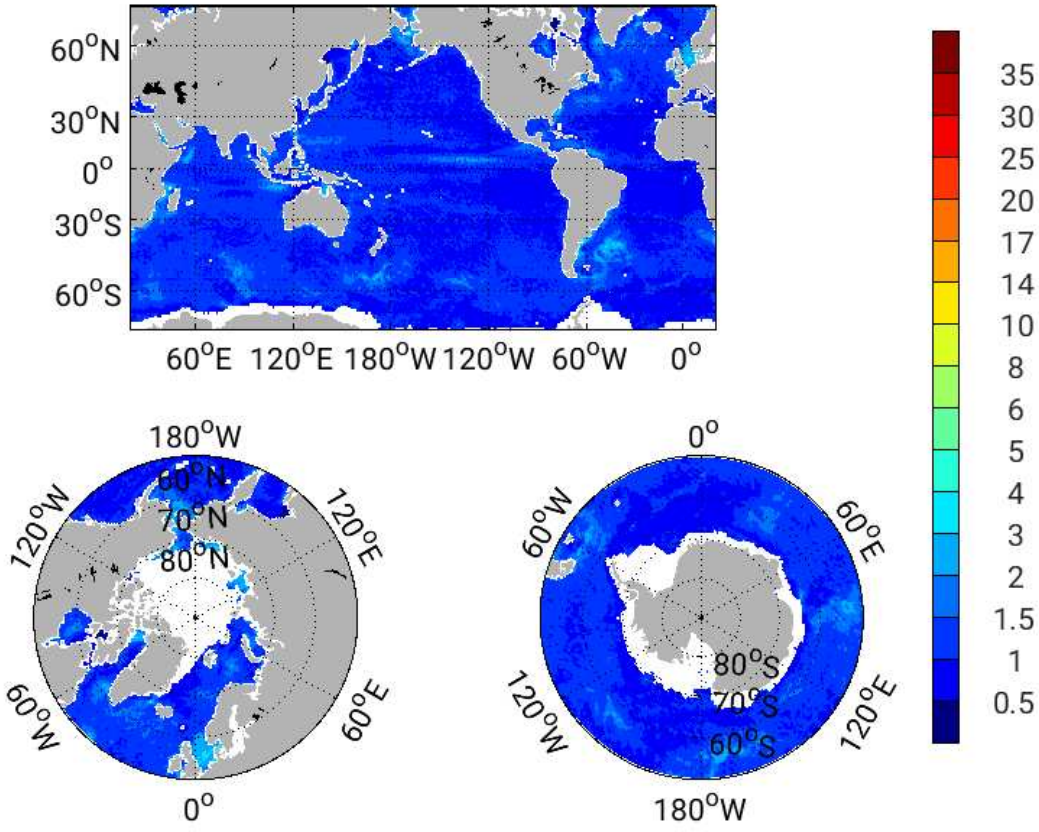

Figure: Sea Level Anomaly, Pointwise: Modeled-Data Cost

fit to altimeter data (RADS)

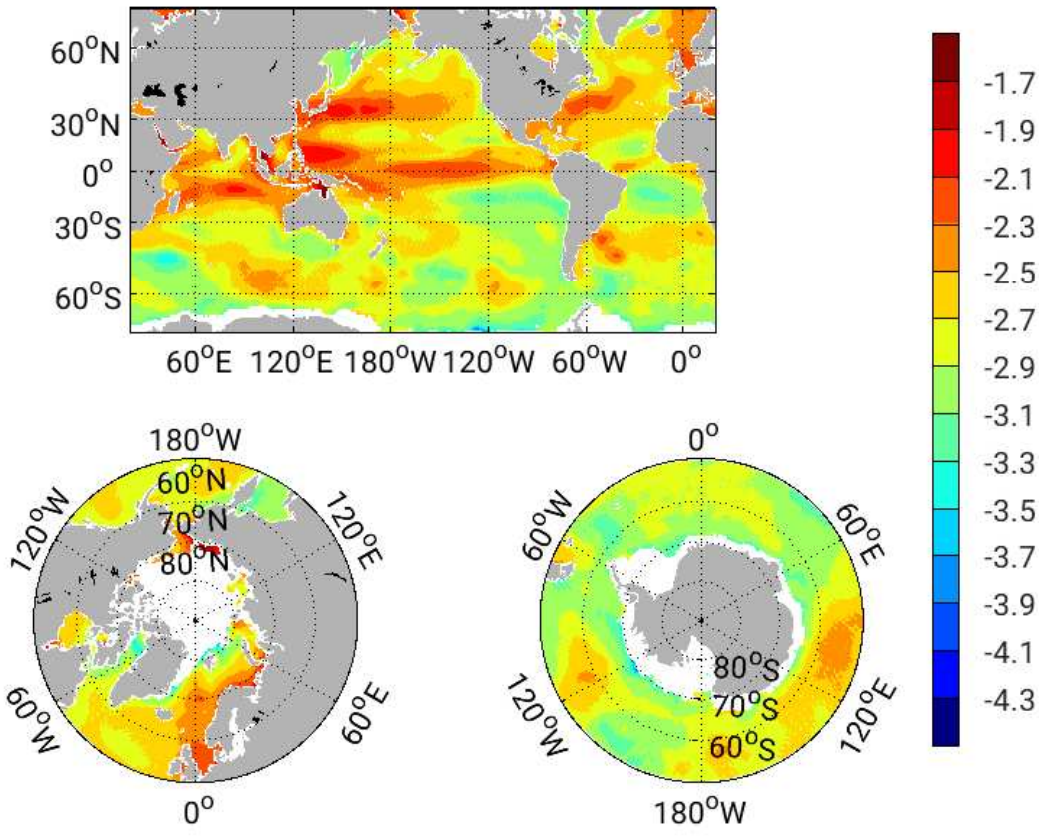

Figure: Sea Level Anomaly, Large Scale: Data log(variance) (m^2)

fit to altimeter data (RADS)

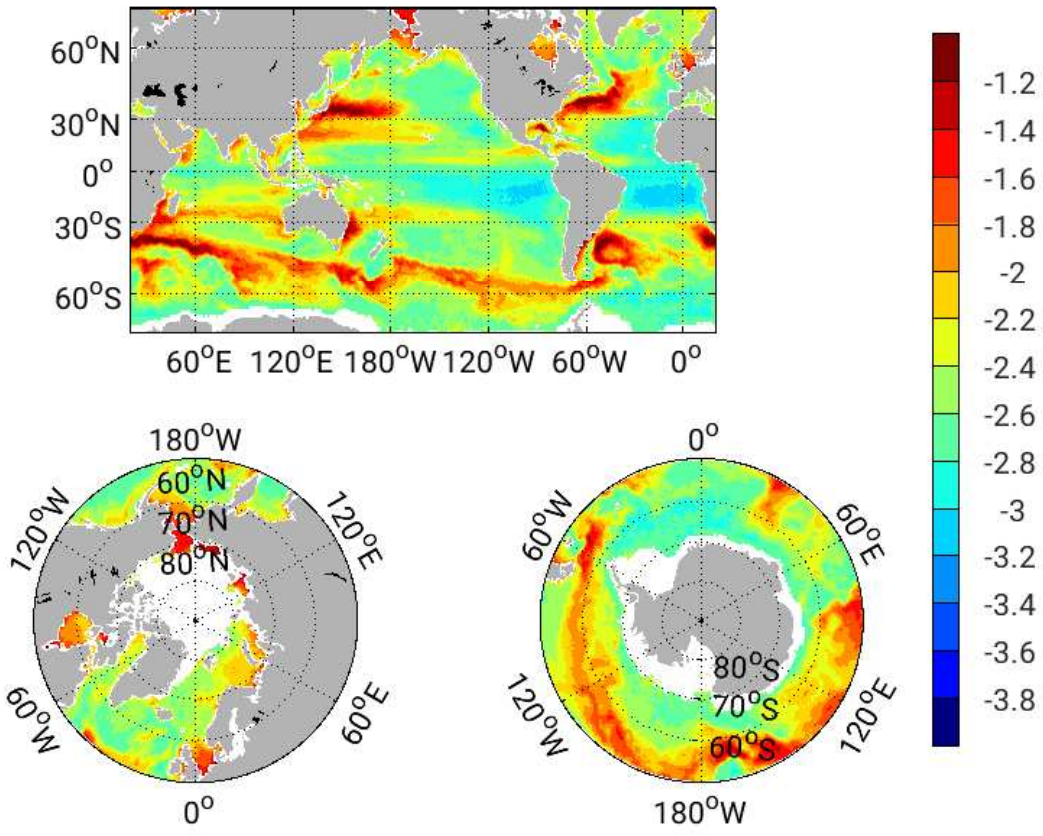

Figure: Sea Level Anomaly, Pointwise: Data log(variance) (m^2)

fit to altimeter data (RADS)

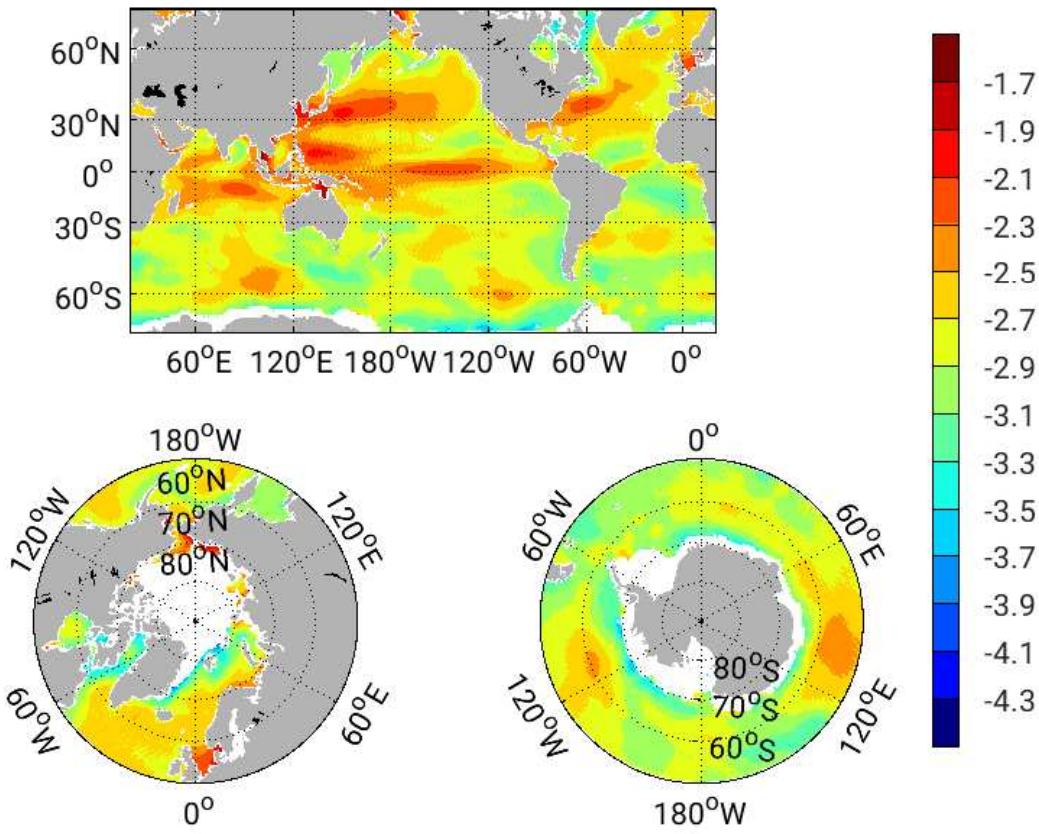

Figure: Sea Level Anomaly, Large Scale: Modeled log(variance) (m^2)

fit to altimeter data (RADS)

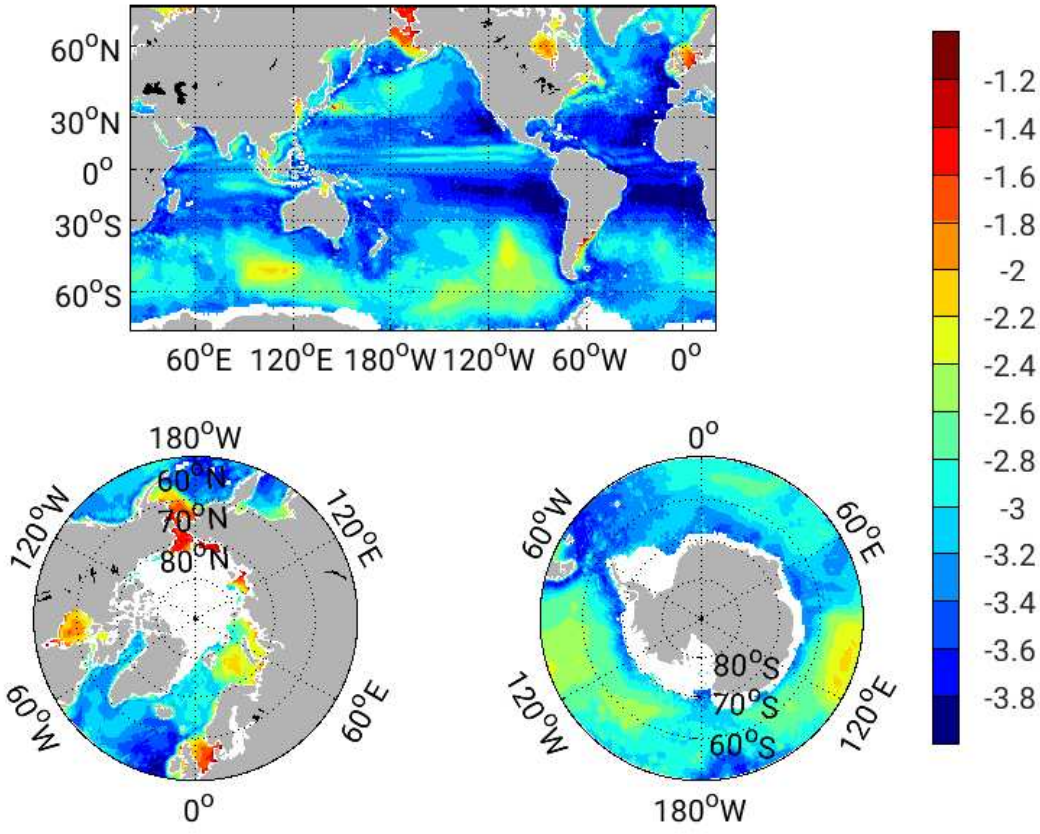

Figure: Sea Level Anomaly, Pointwise: Modeled log(variance) (m^2)

fit to grace r4 data

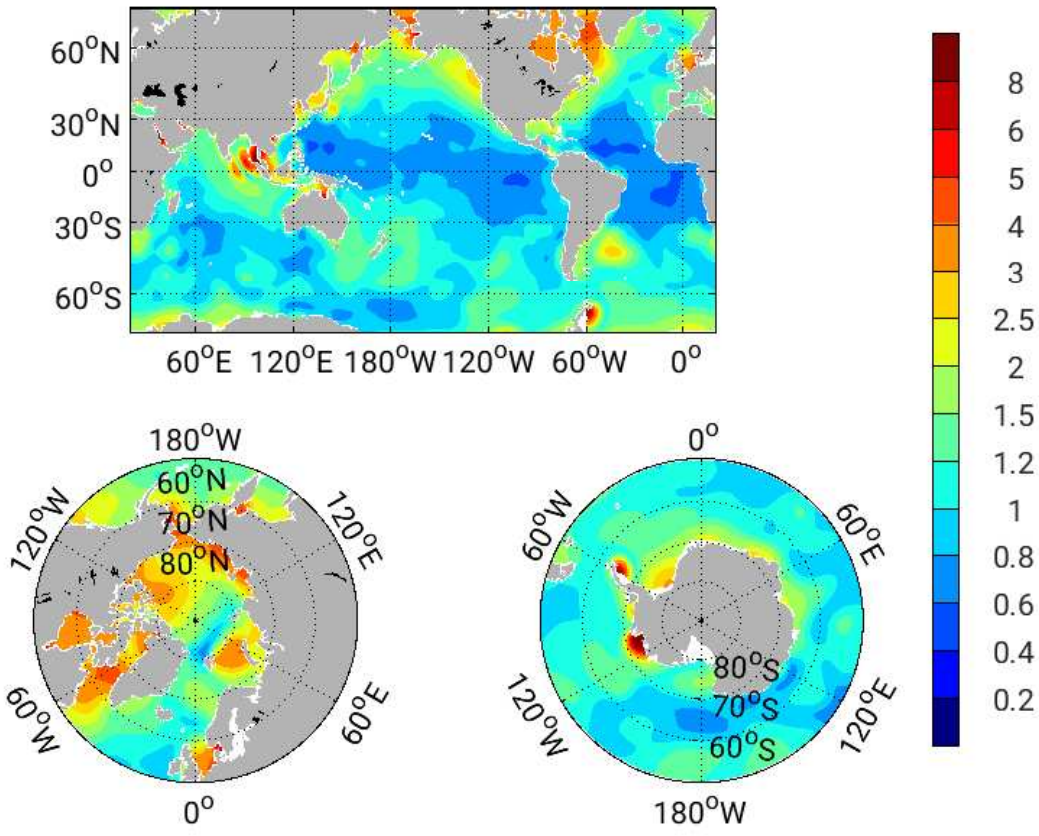

Figure: Bottom Pressure (cm): RMS of Modeled-Data

fit to grace r4 data

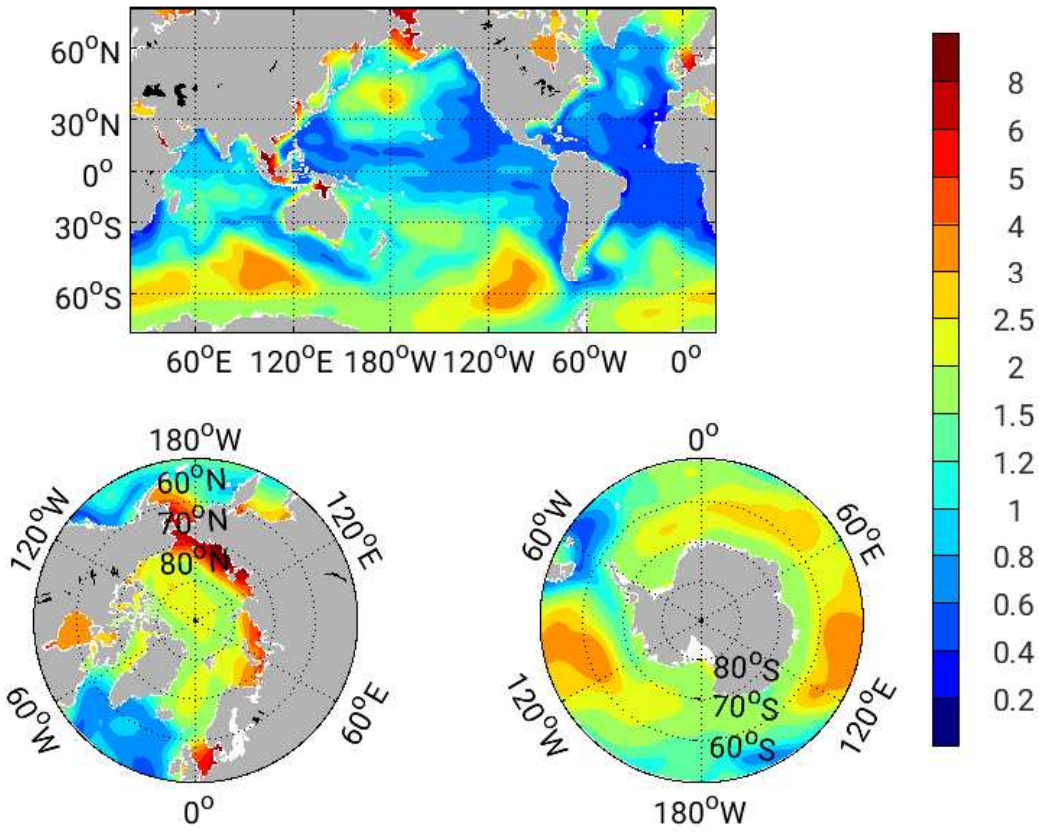

Figure: Bottom Pressure (cm): RMS of Modeled

fit to grace r4 data

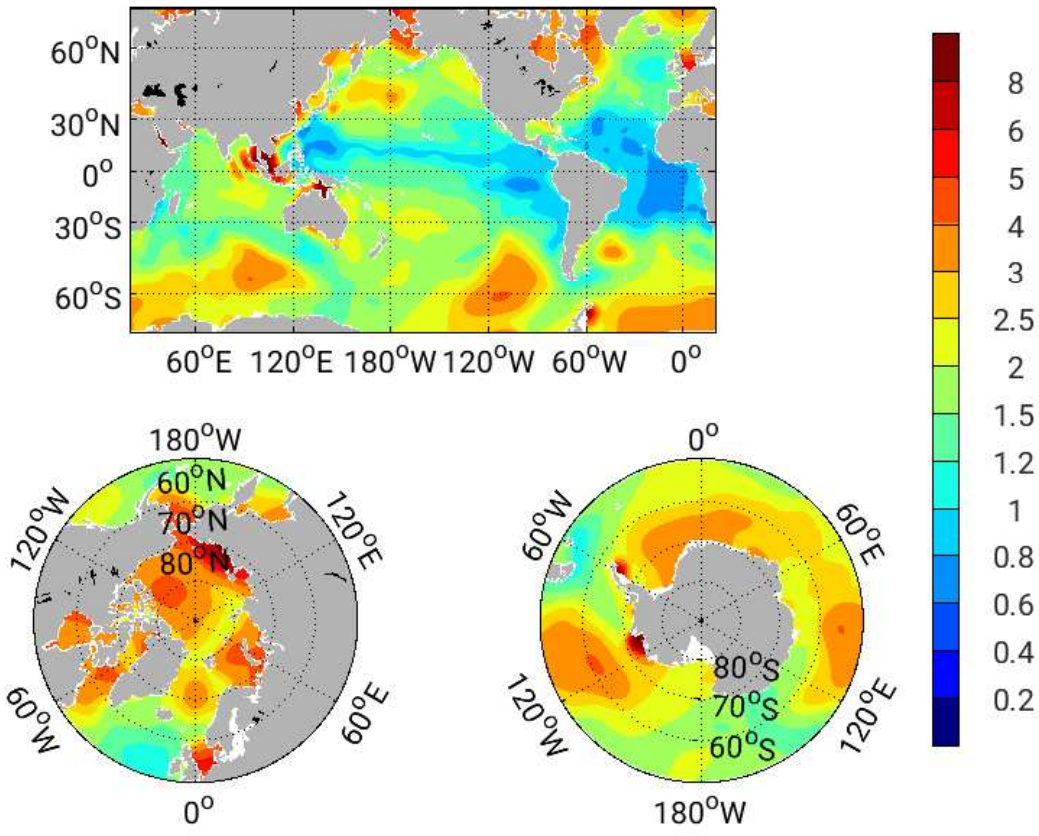

Figure: Bottom Pressure (cm): RMS of Data

fit to grace r4 data

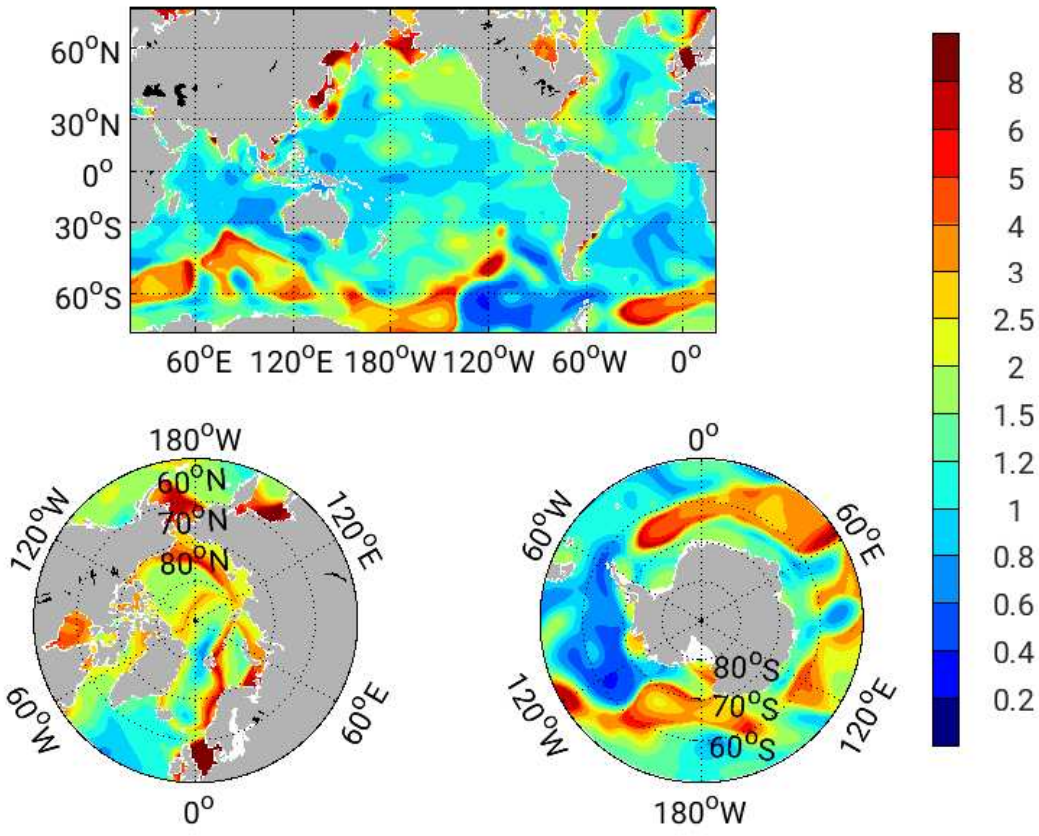

Figure: Bottom Pressure (cm): Cost function

barotropic streamfunction

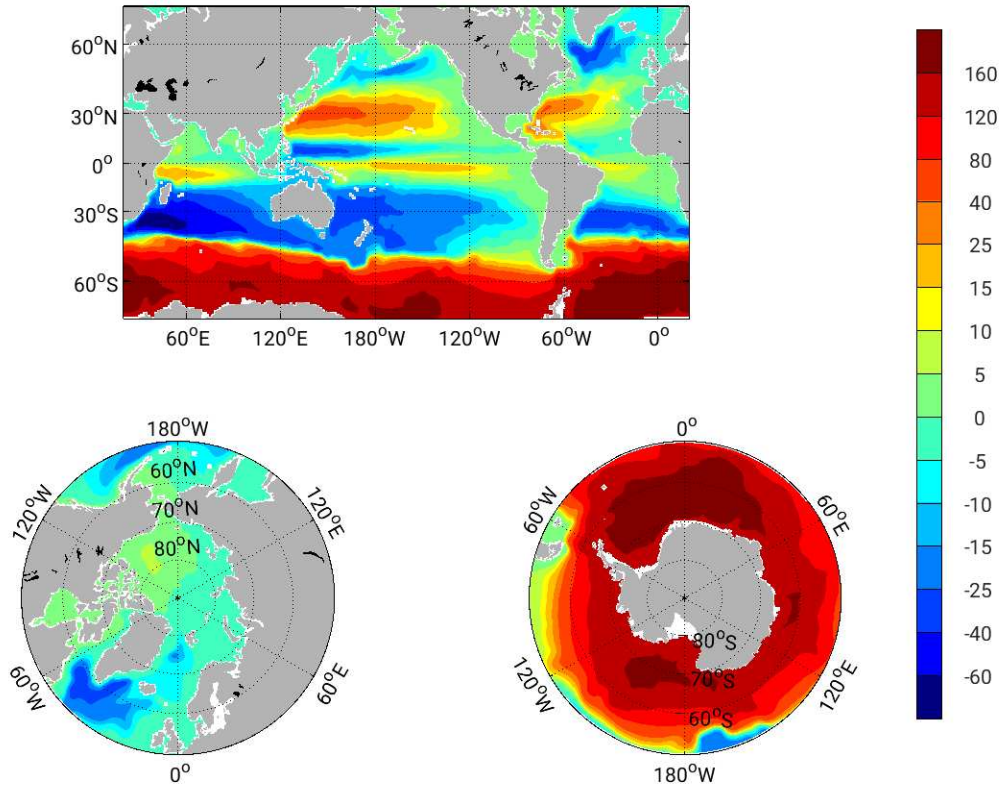

Figure: Barotropic Streamfunction (Sv): 1992 thru 2015 Mean

barotropic streamfunction

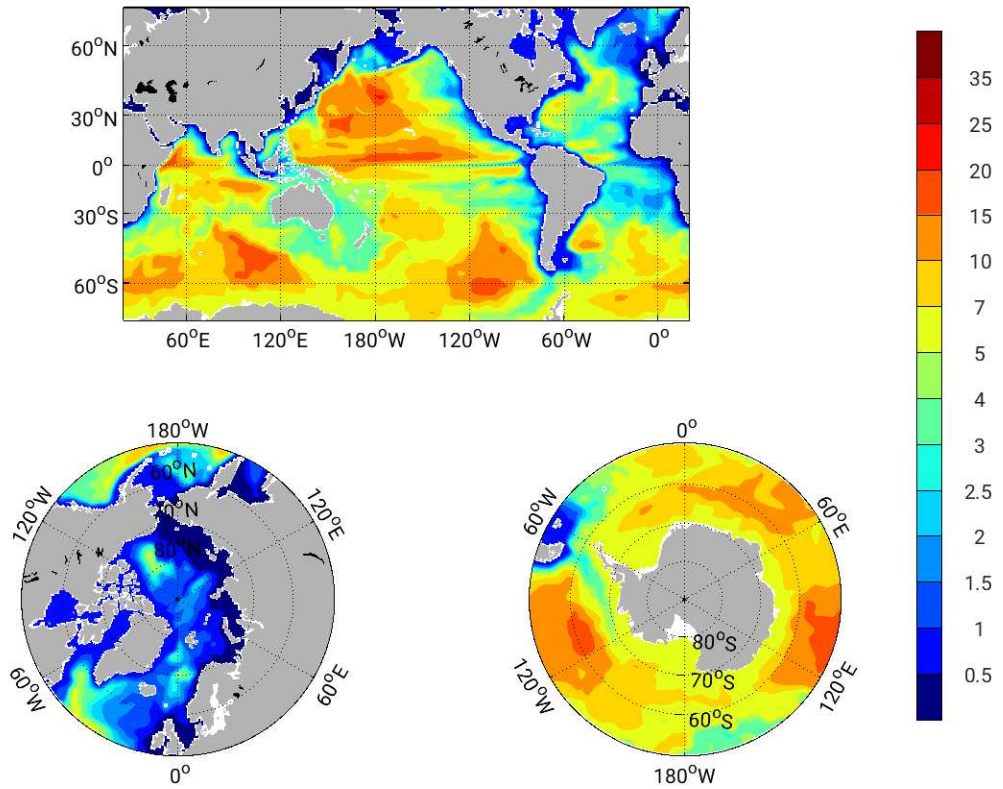

Figure: Barotropic Streamfunction (Sv): Standard Deviation, 1992 thru 2015

meridional streamfunction

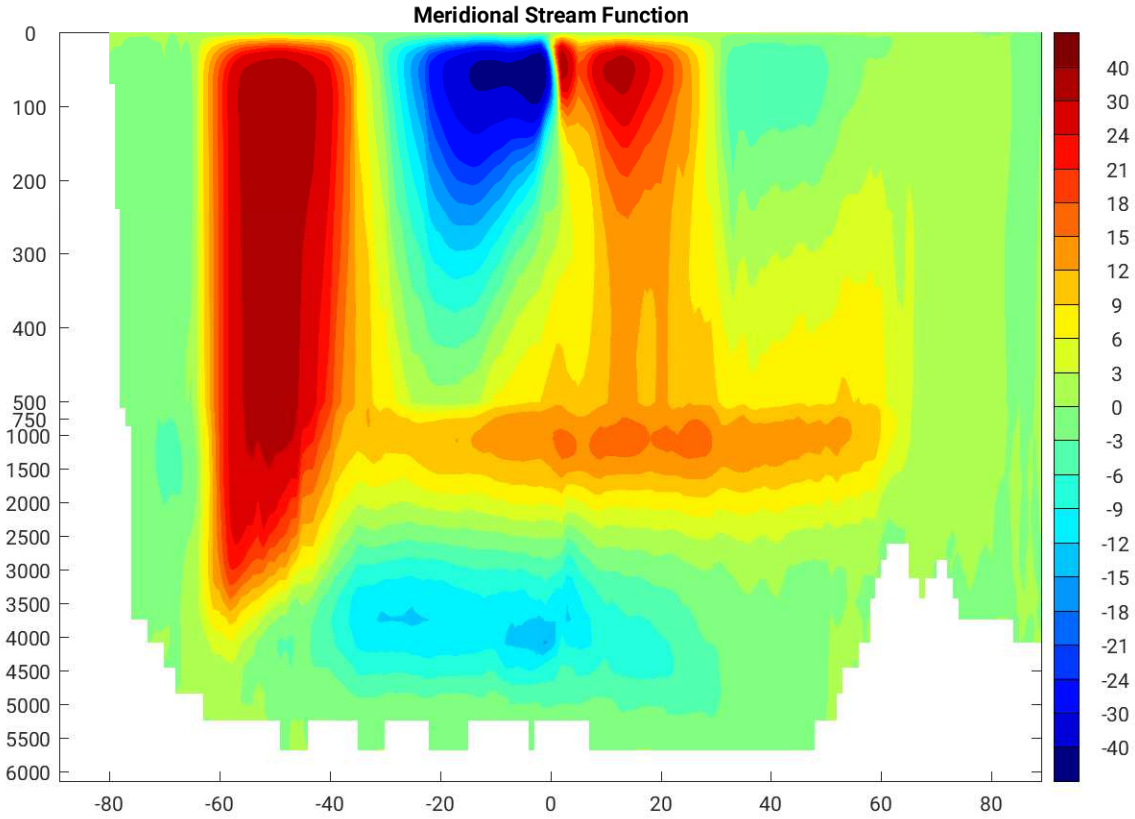

Figure: Overturning Streamfunction (Sv): 1992 thru 2015 Mean

meridional streamfunction

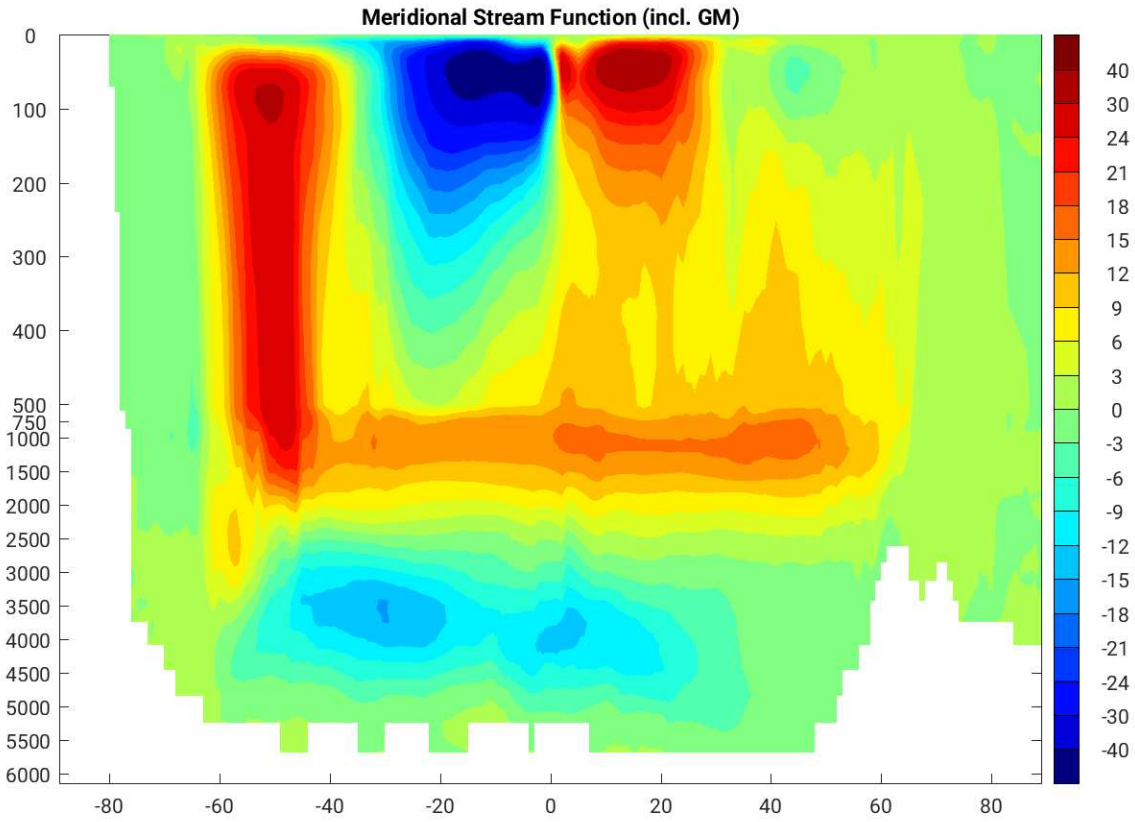

Figure: Overturning Streamfunction incl. GM (Sv): 1992 thru 2015 Mean

meridional streamfunction

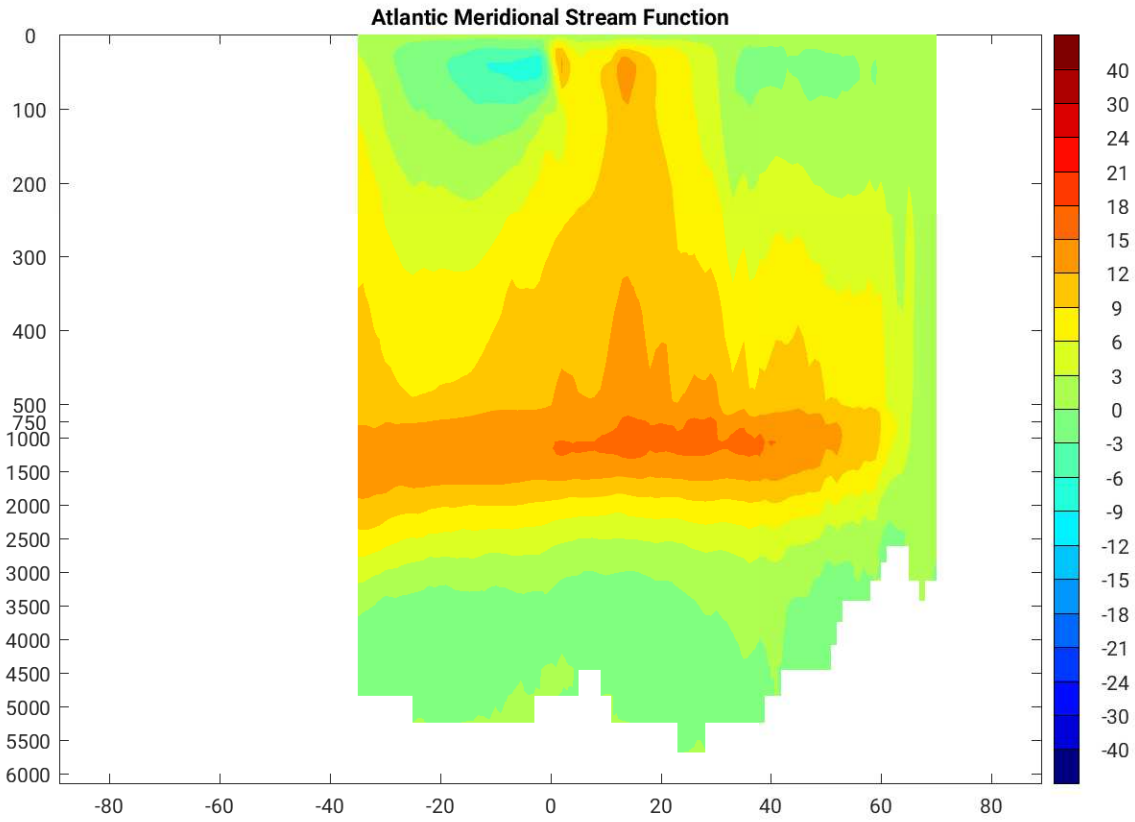

Figure: Atlantic Overturning Streamfunction (Sv): 1992 thru 2015 Mean

meridional streamfunction

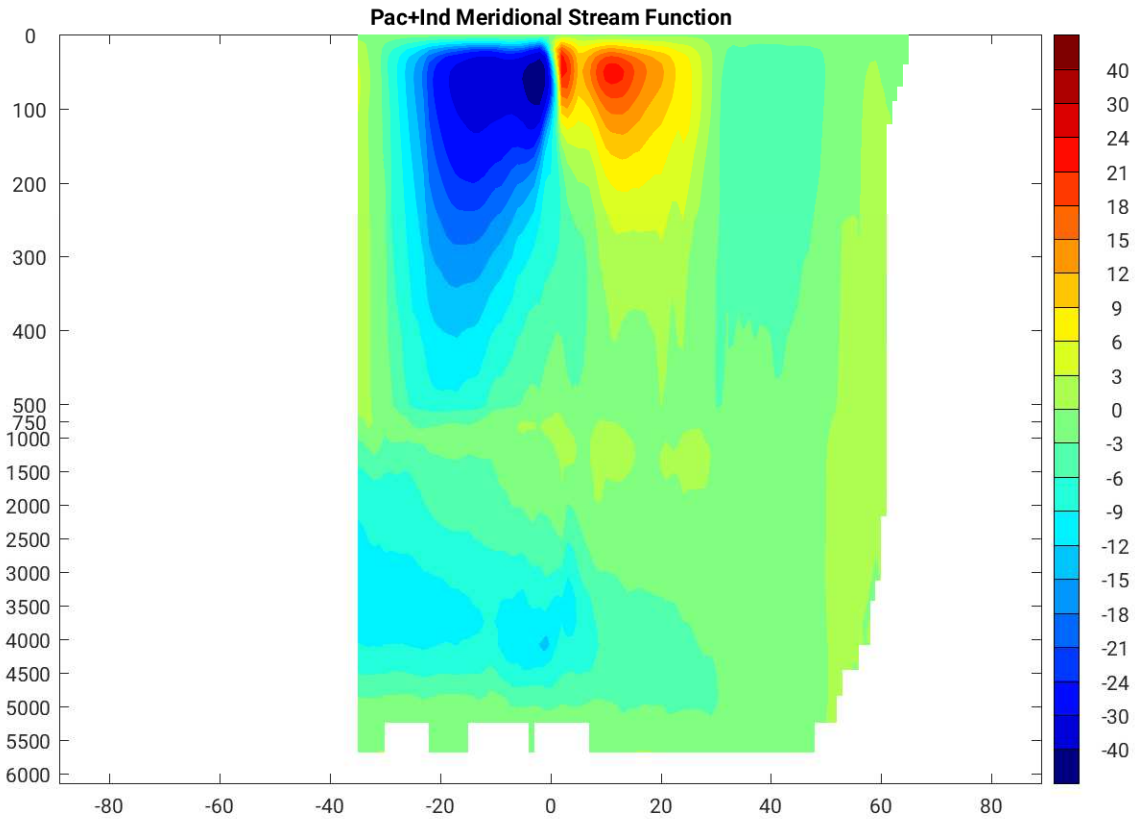

Figure: Pac+Ind Overturning Streamfunction (Sv): 1992 thru 2015 Mean

meridional streamfunction

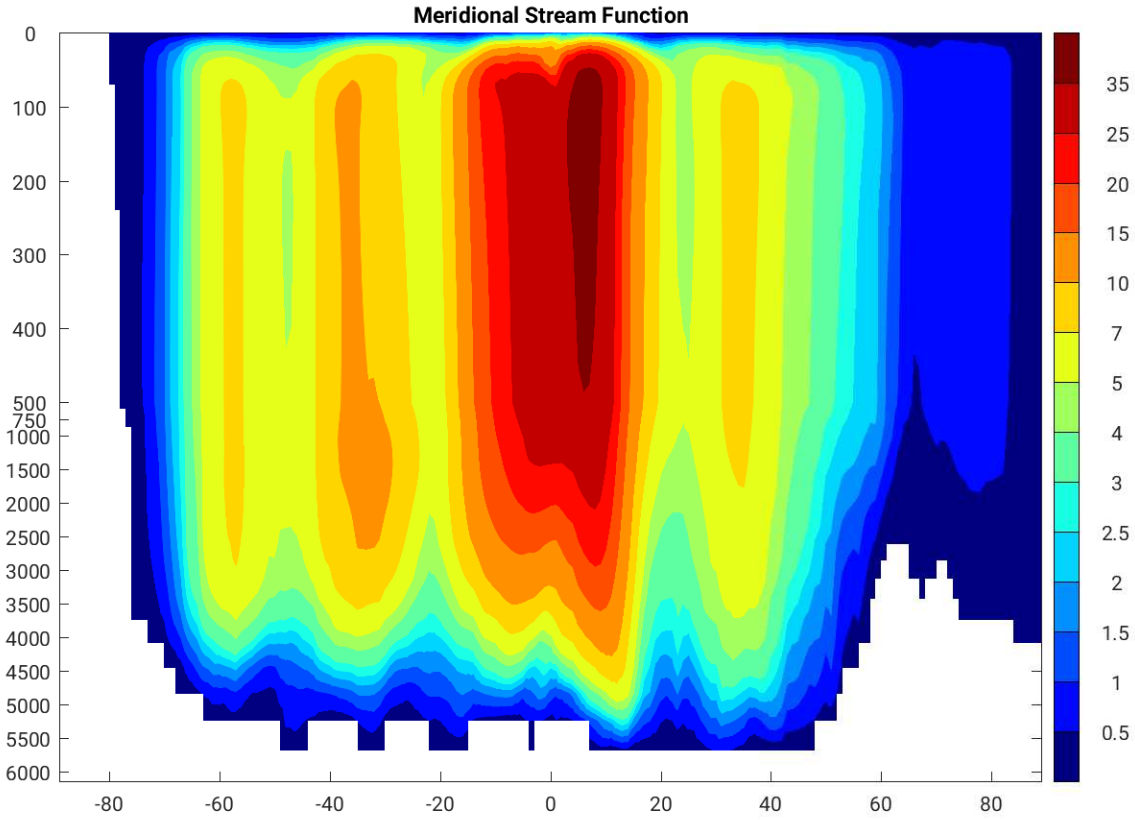

Figure: Overturning Streamfunction (Sv): Standard Deviation, 1992 thru 2015

meridional streamfunction

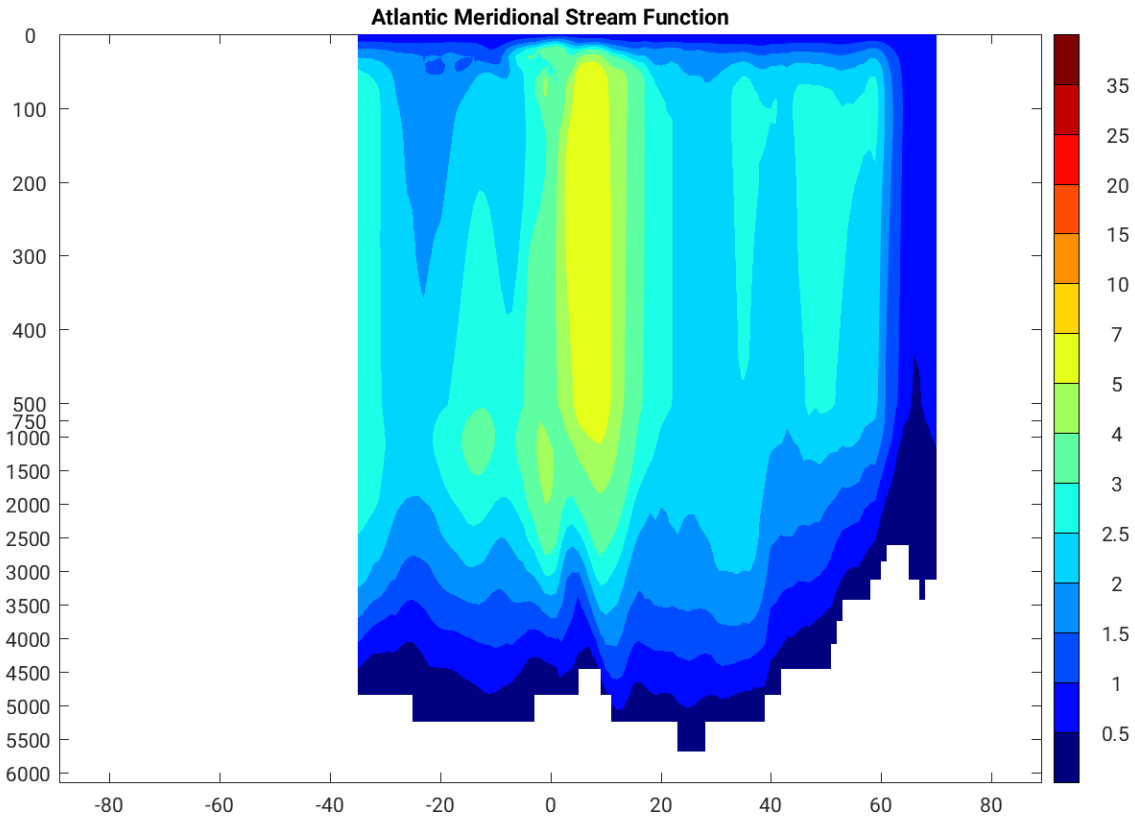

Figure: Atlantic Overturning Streamfunction (Sv): Standard Deviation, 1992 thru 2015

meridional streamfunction (time series)

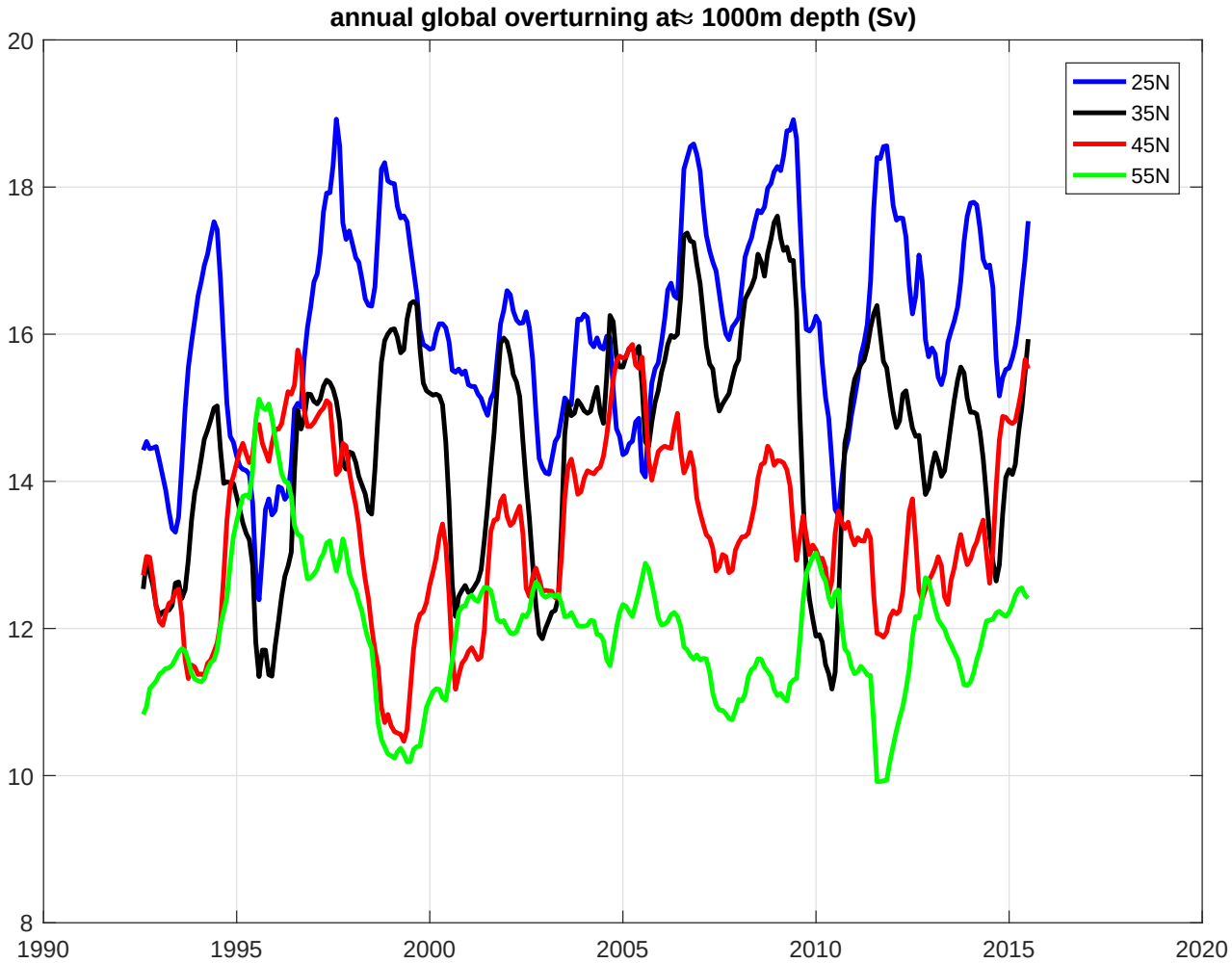

Figure: Annual Global Overturning at Select Latitudes at $\approx$ 1000m Depth

meridional streamfunction (time series)

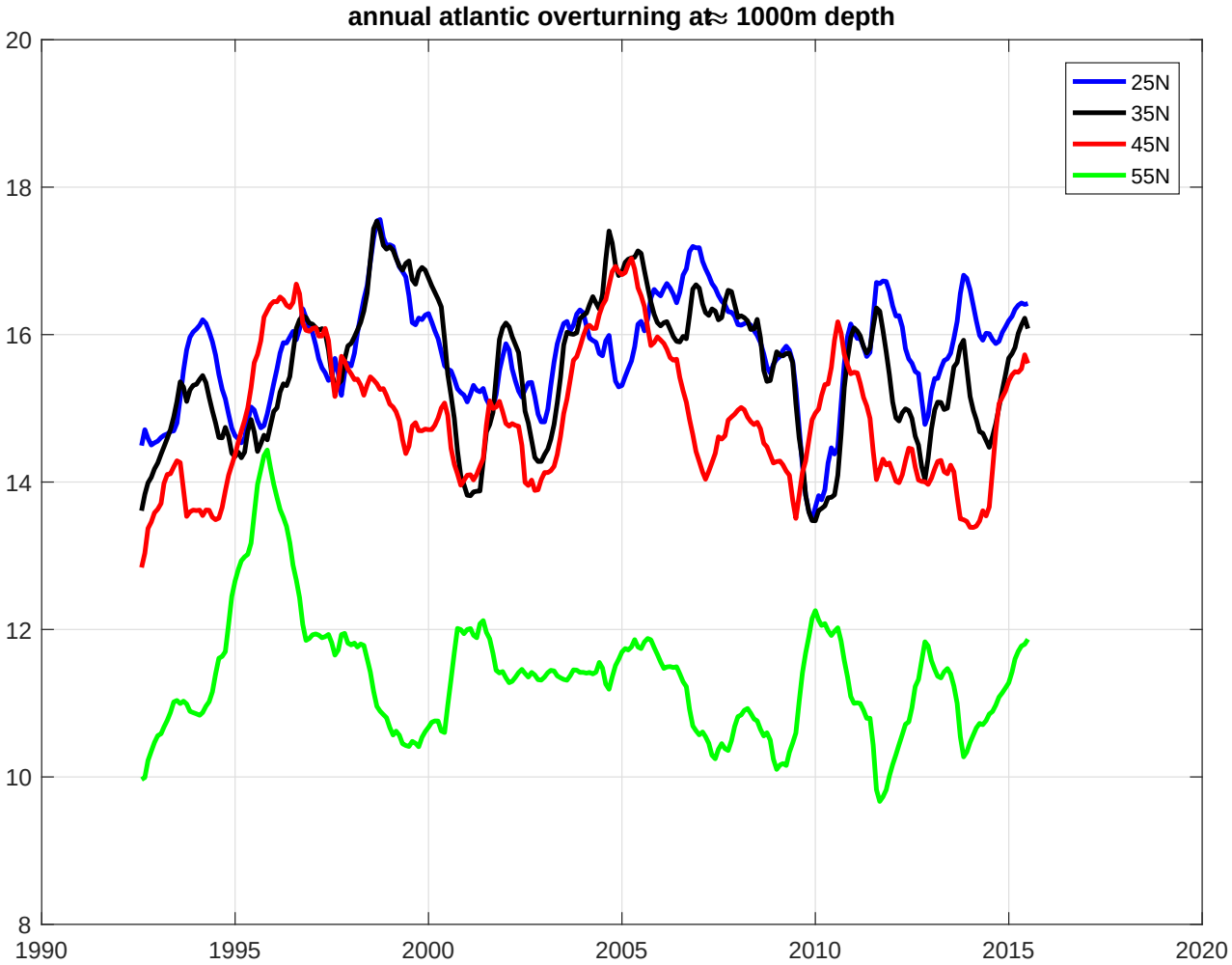

Figure: Annual Atlantic Overturning at Select Latitudes at ≈ 1000m Depth (Sv)

meridional heat transport

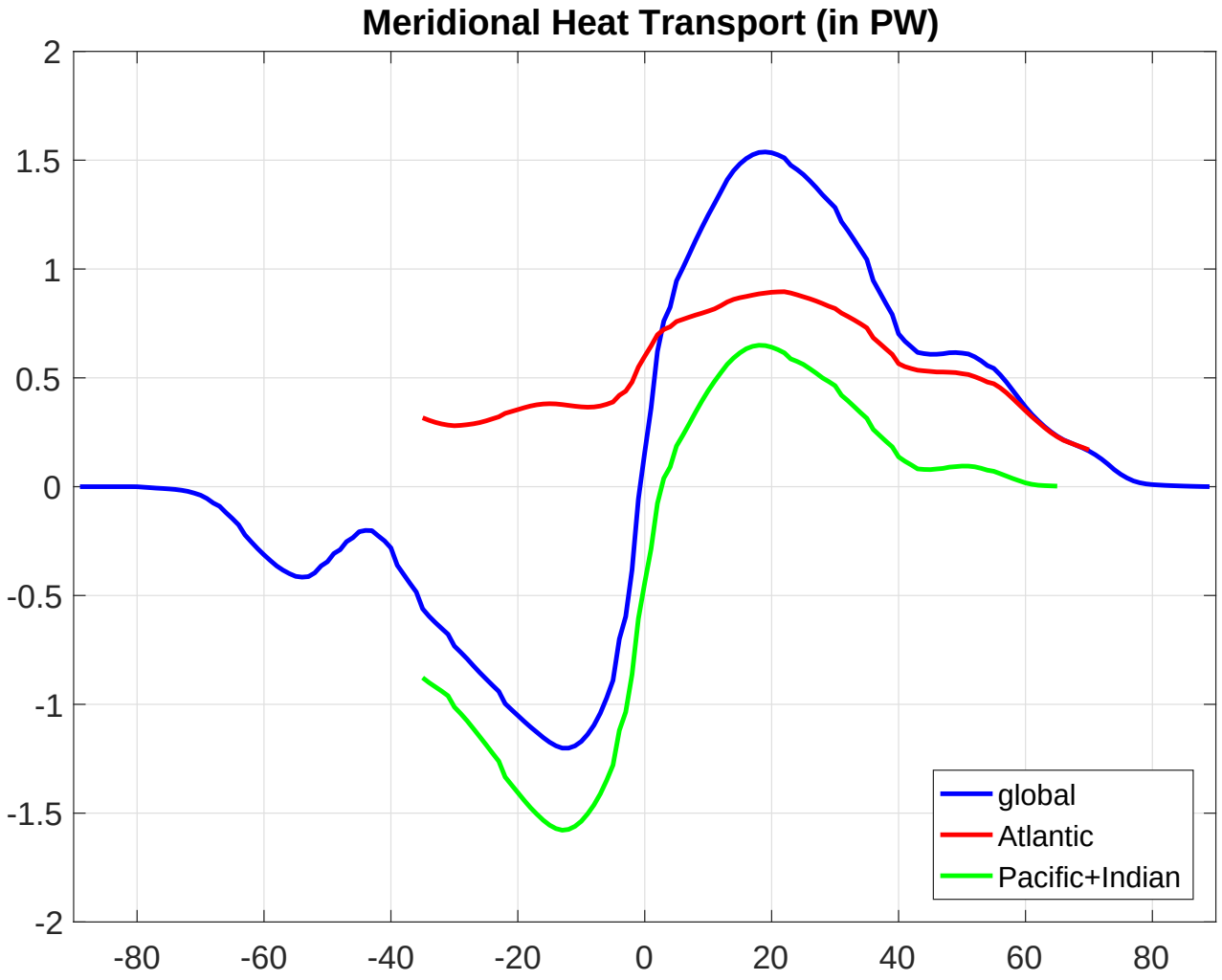

Figure: Meridional Heat Transport (PW): 1992 thru 2015 Mean

meridional heat transport

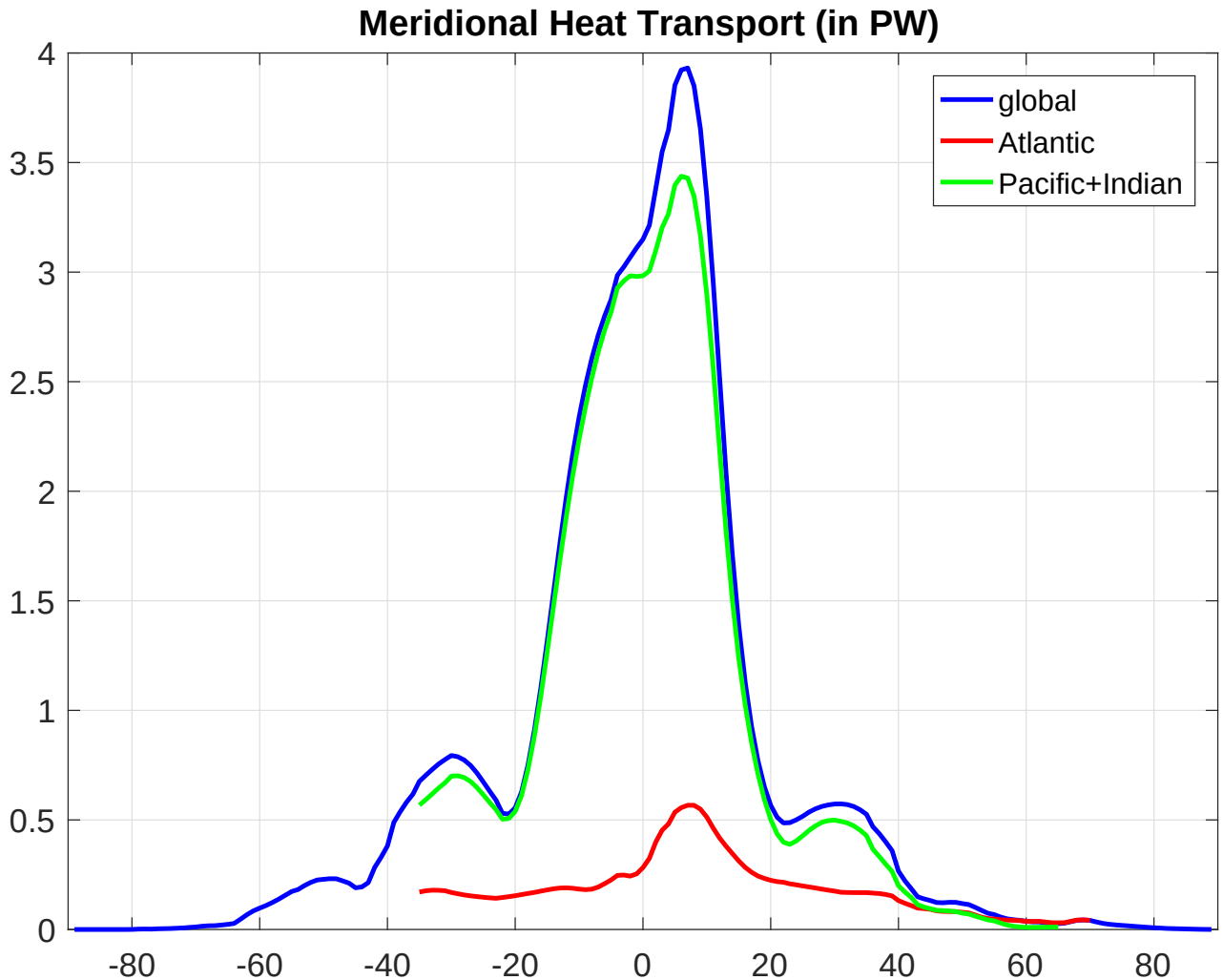

Figure: Meridional Heat Transport (PW): Standard Deviation, 1992 thru 2015

meridional freshwater transport

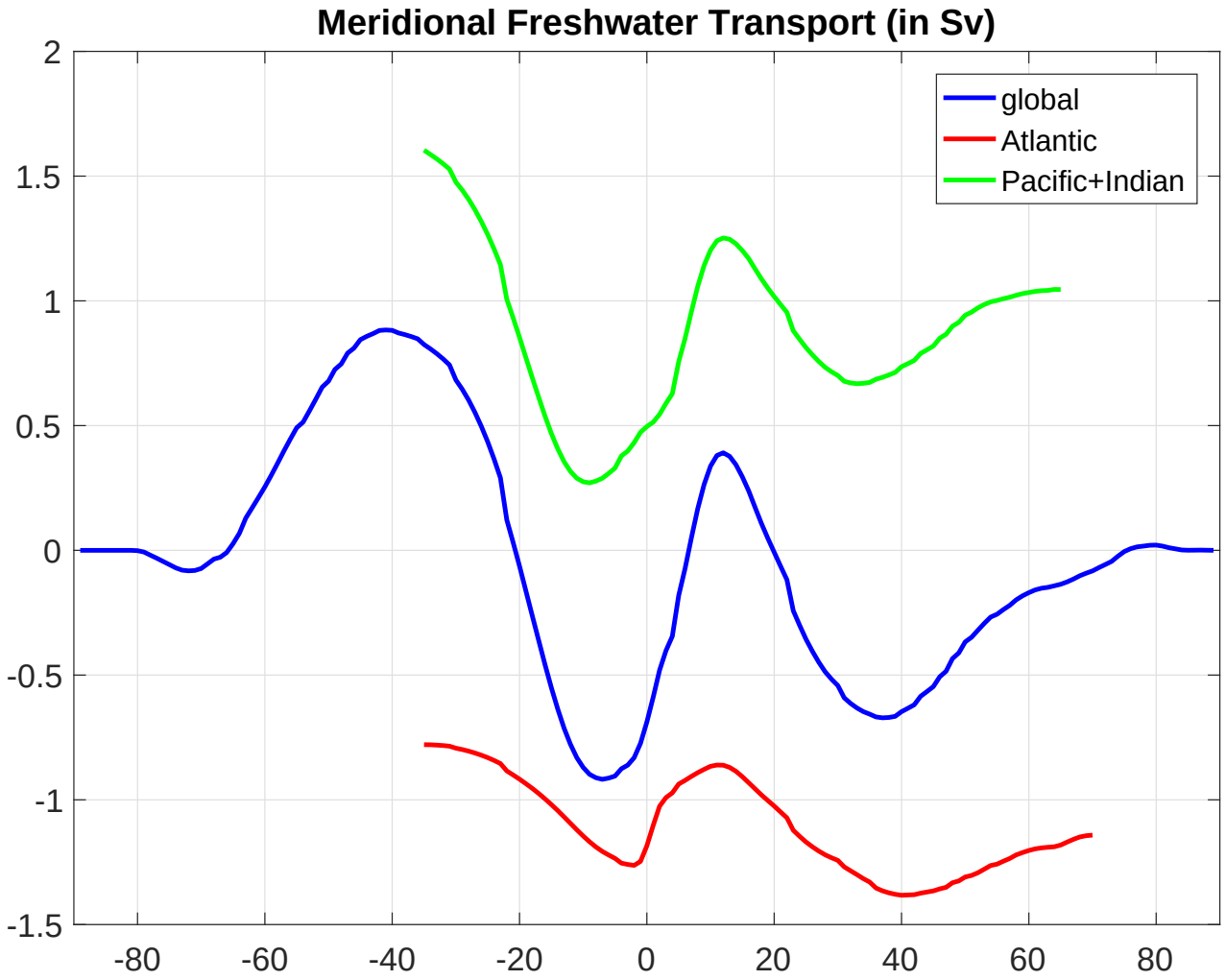

Figure: Meridional Freshwater Transport (Sv): 1992 thru 2015 Mean

meridional freshwater transport

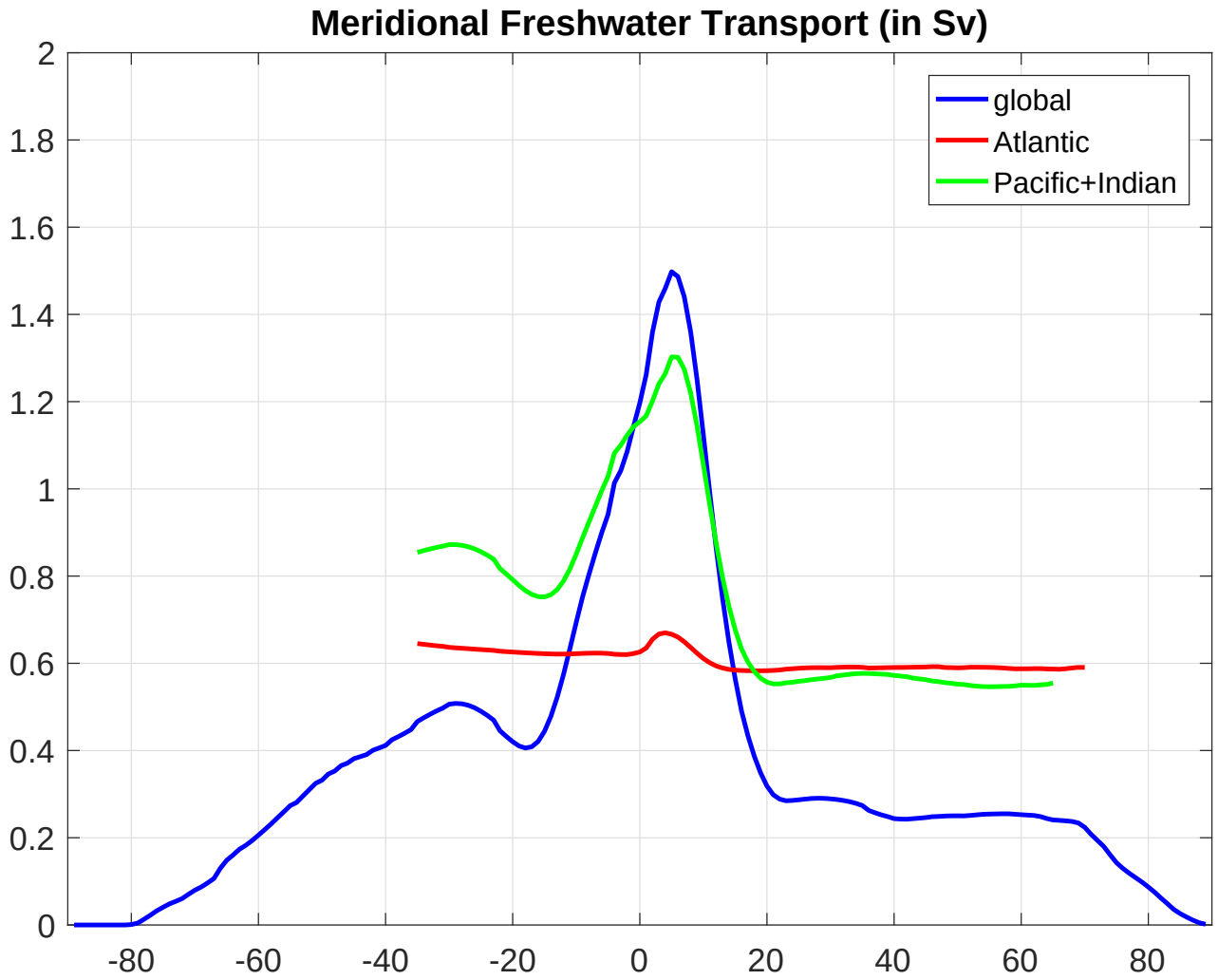

Figure: Meridional Freshwater Transport (Sv): Standard Deviation, 1992 thru 2015

meridional salt transport

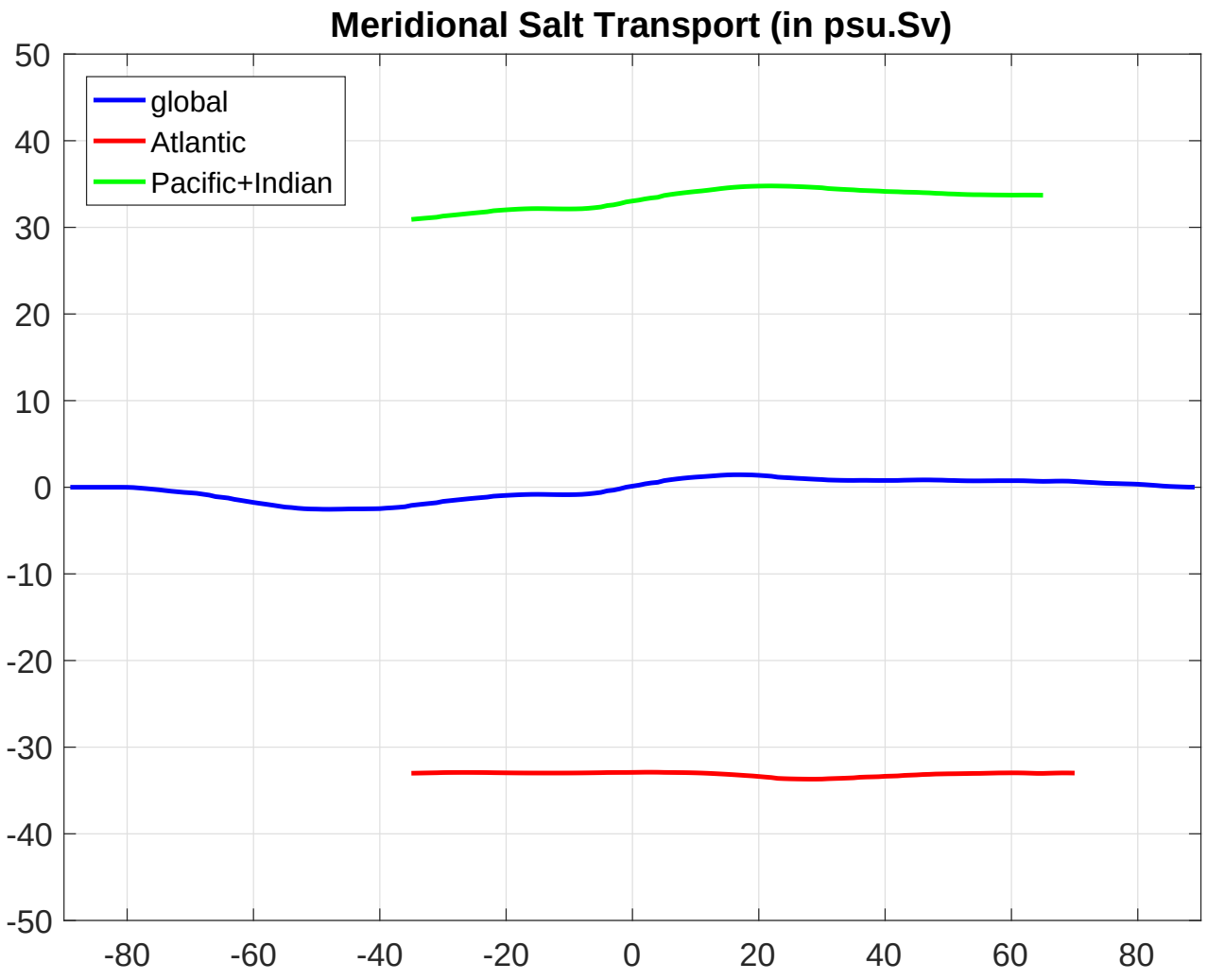

Figure: Meridional Salt Transport (psu.Sv): 1992 thru 2015 Mean

meridional salt transport

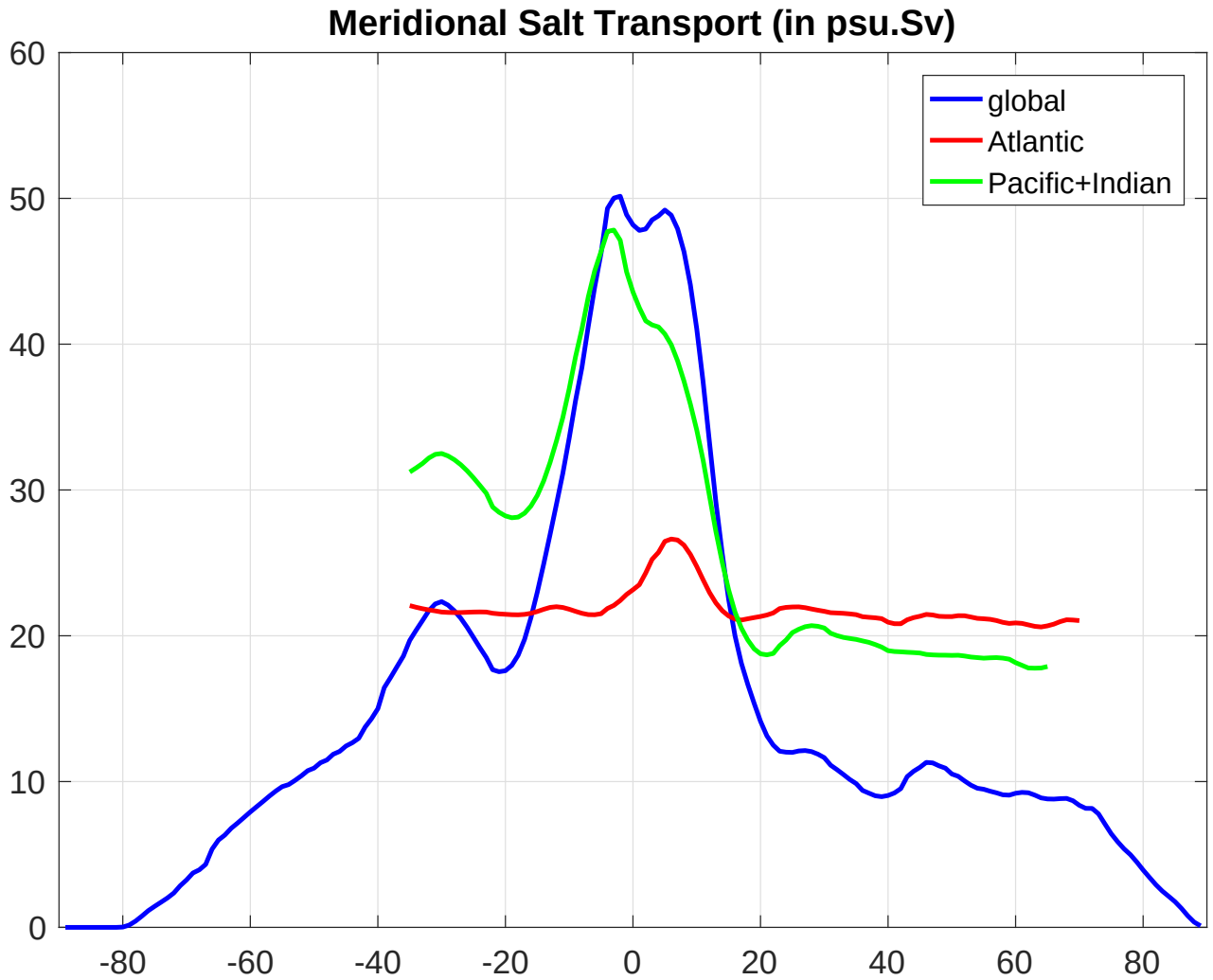

Figure: Meridional Salt Transport (psu.Sv): Standard Deviation, 1992 thru 2015

meridional transports (time series)

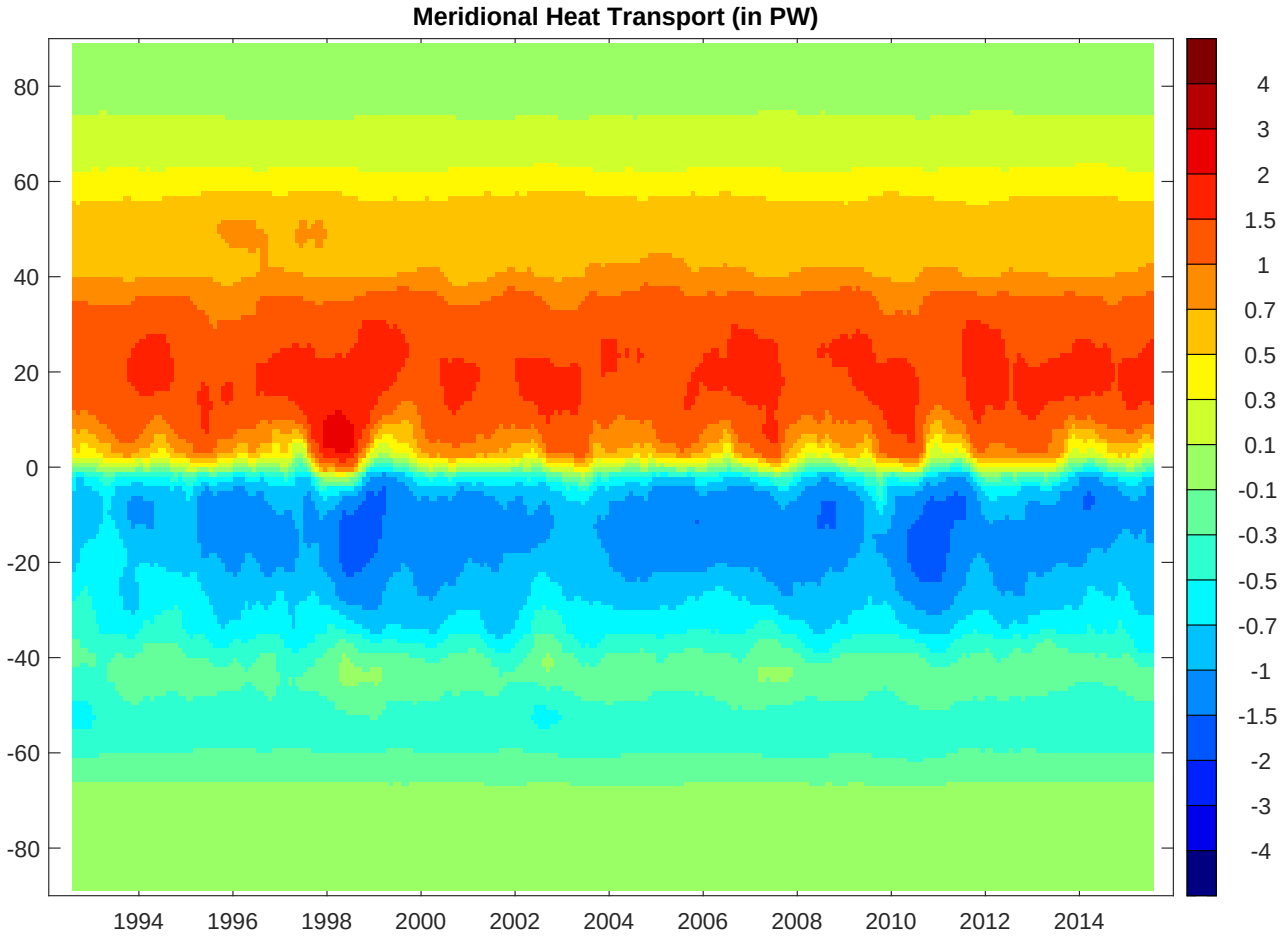

Figure: Meridional Heat Transport (PW, annual mean)

meridional transports (time series)

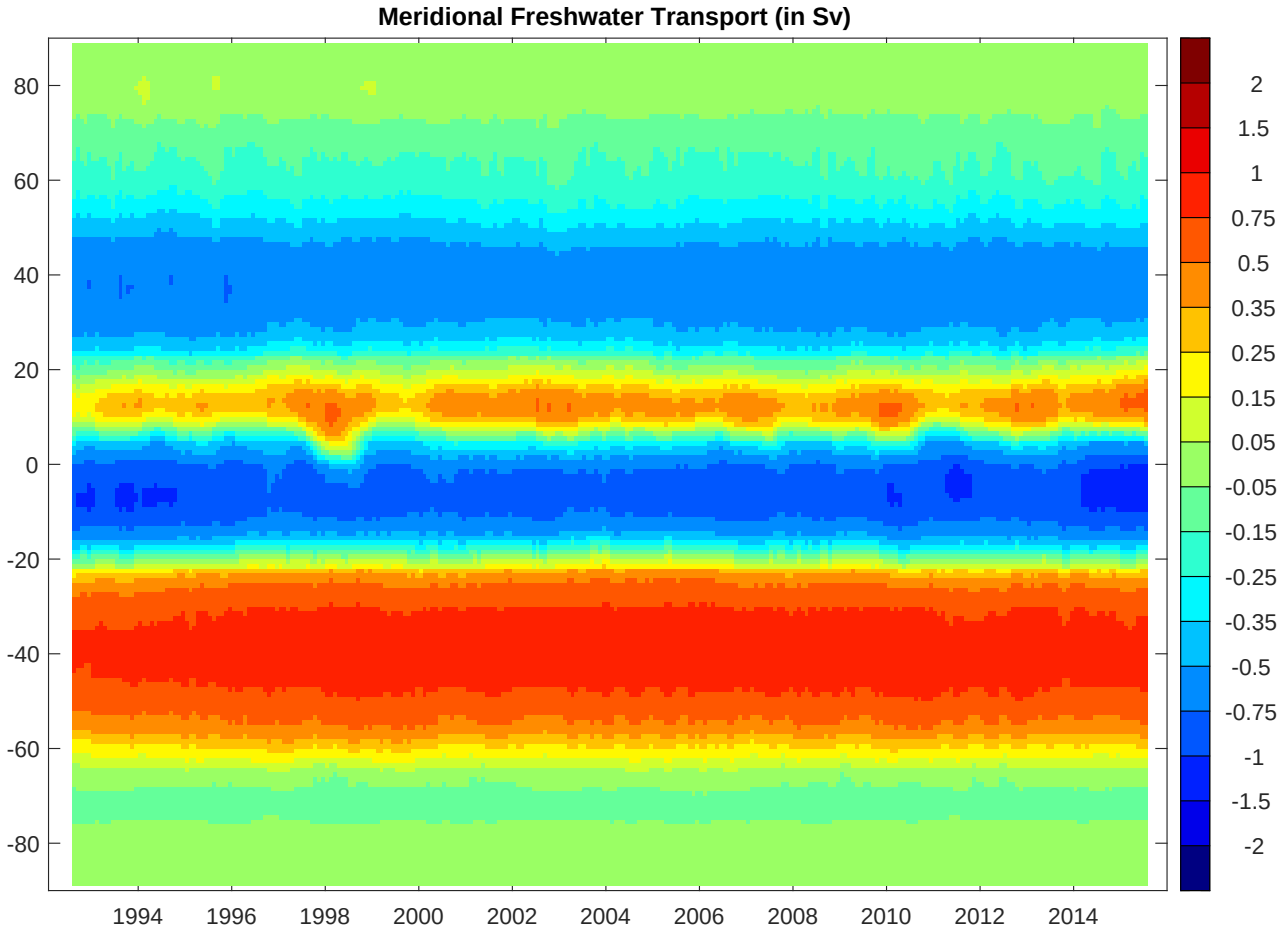

Figure: Meridional Freshwater Transport (Sv, annual mean)

meridional transports (time series)

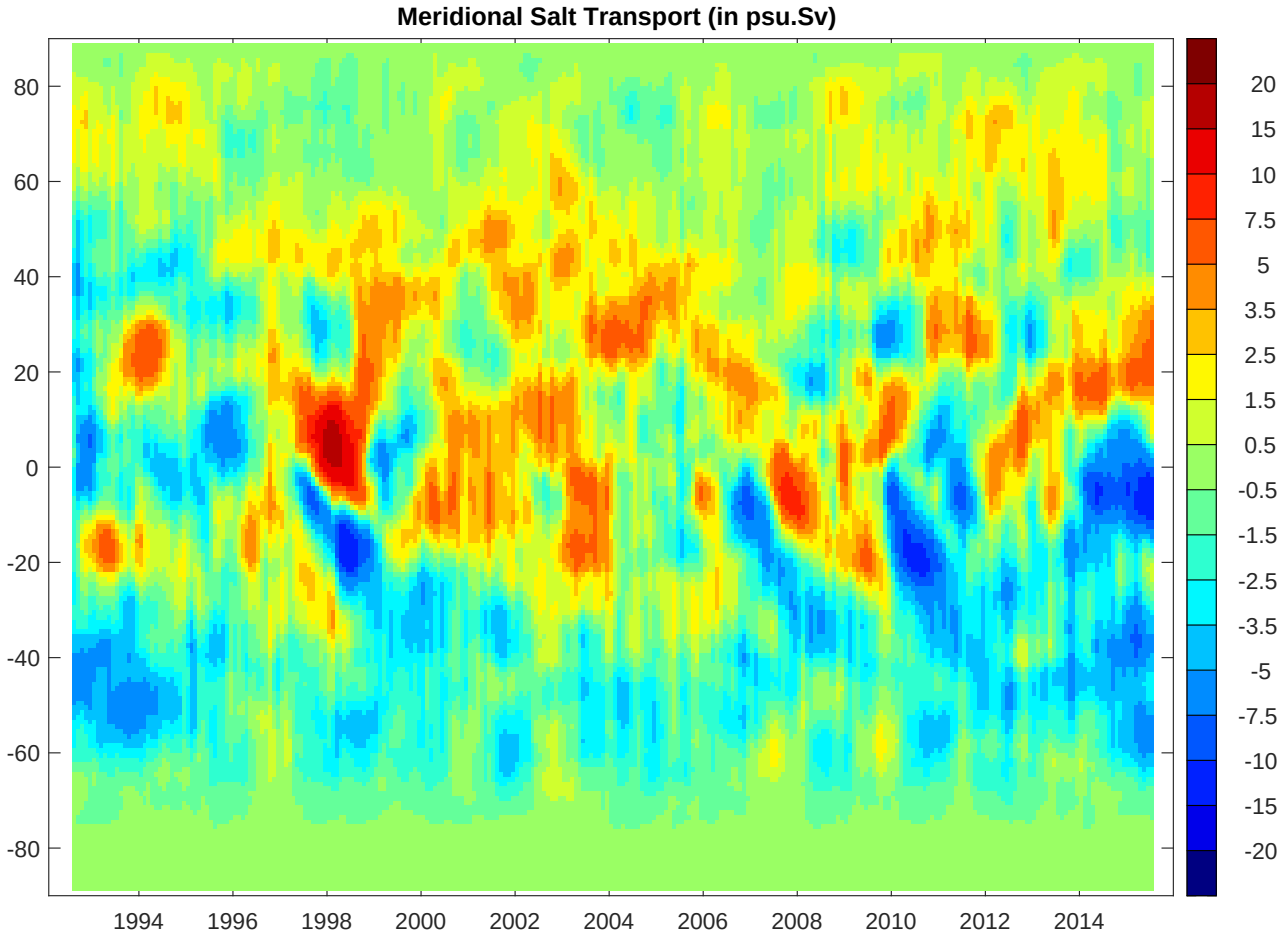

Figure: Meridional Salt Transport (psu.Sv, annual mean)

transects transport

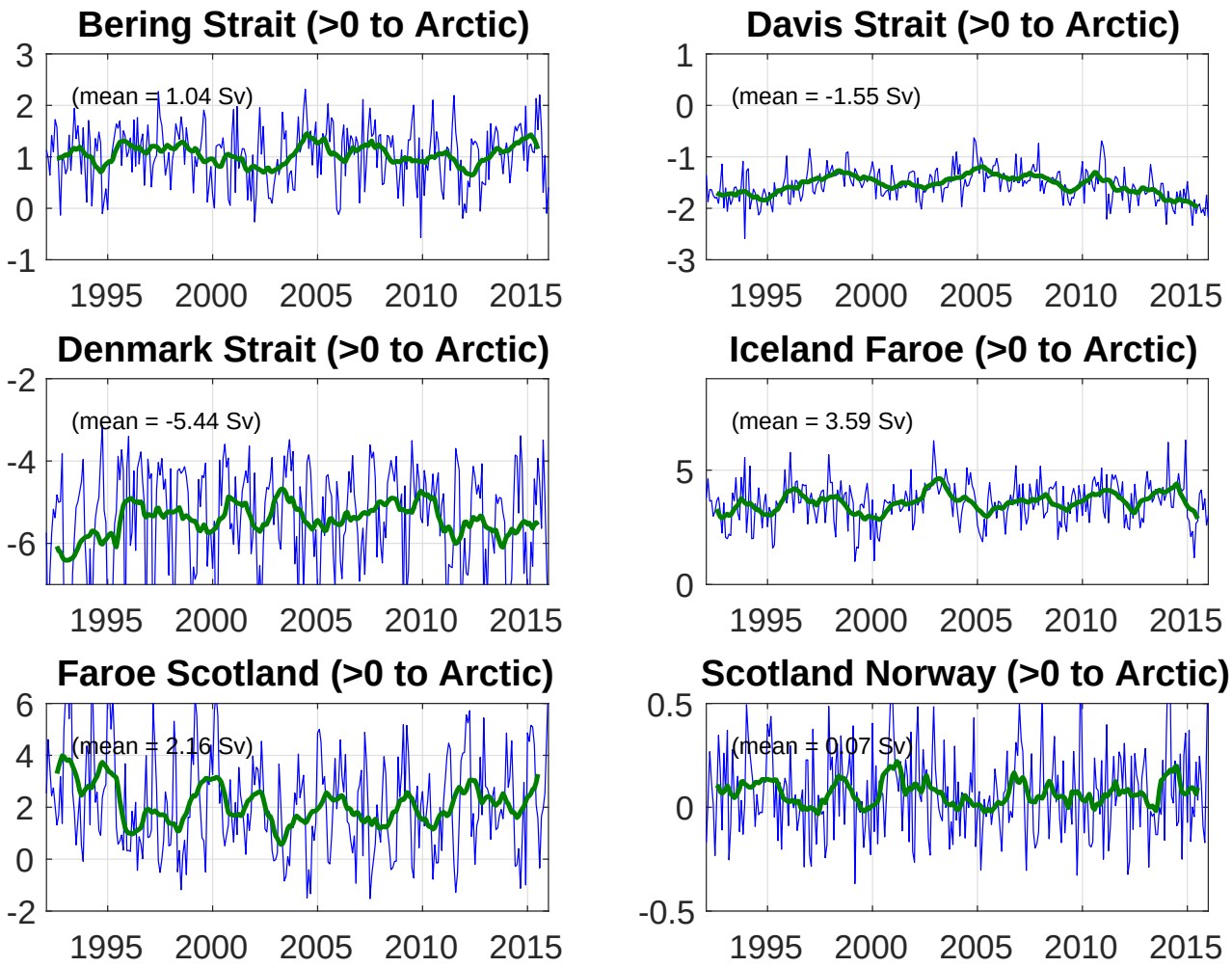

Figure: Volume Transports Entering the Arctic (Sv, annual mean)

transects transport

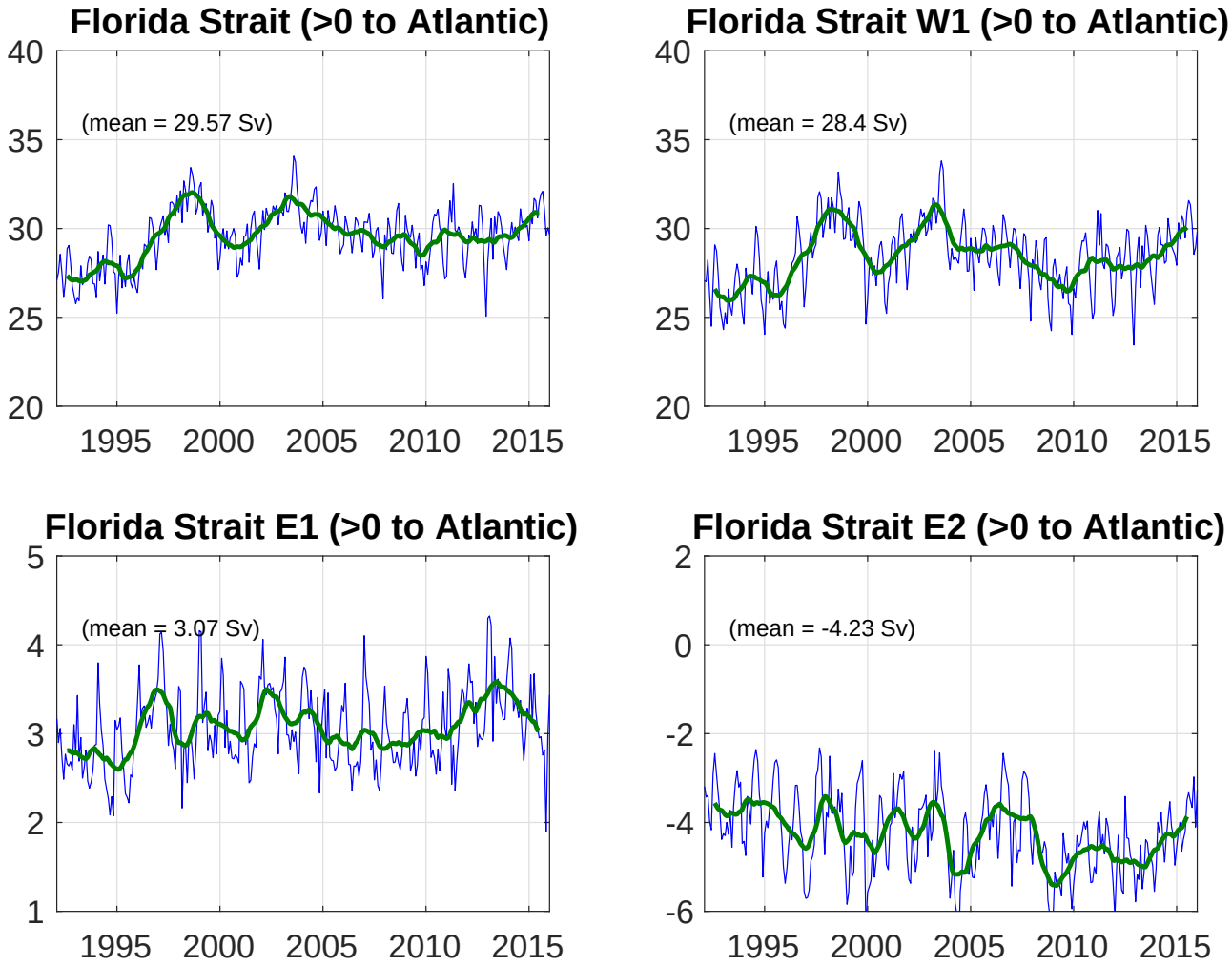

Figure: Volume Transports Entering the Atlantic (Sv, annual mean)

transects transport

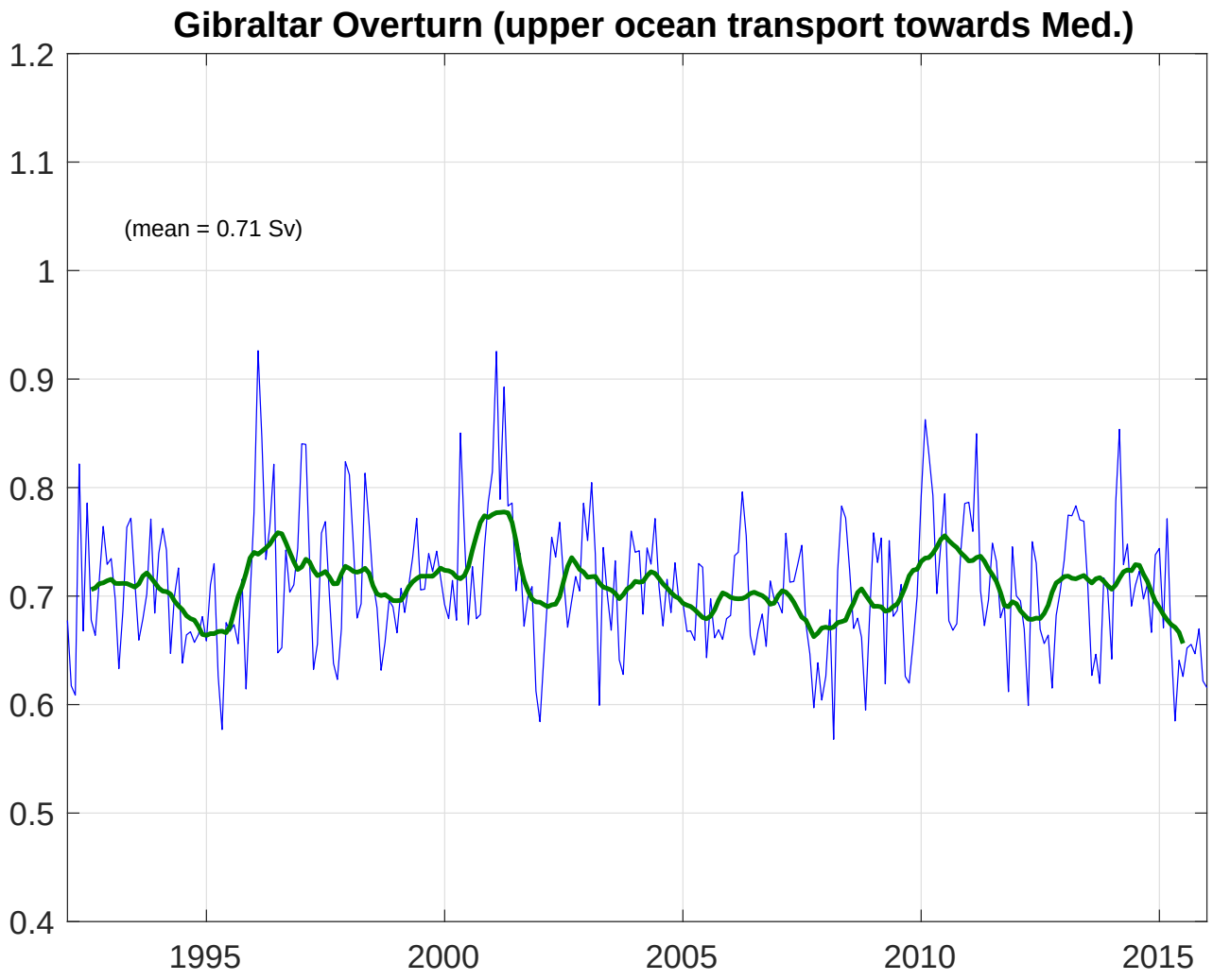

Figure: Gibraltar Overturn (Sv, annual mean)

transects transport

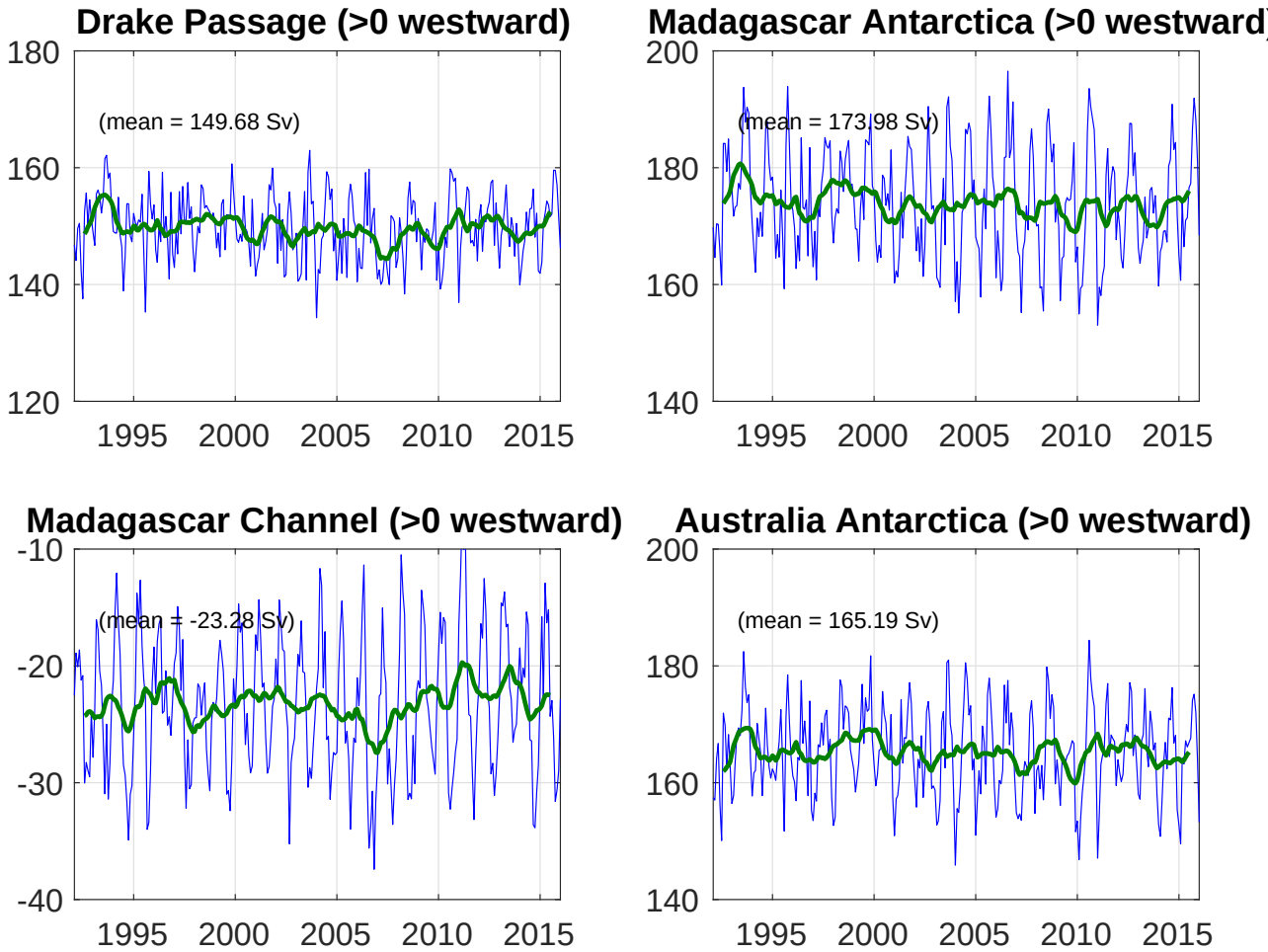

Figure: ACC Volume Transports (Sv, annual mean)

transects transport

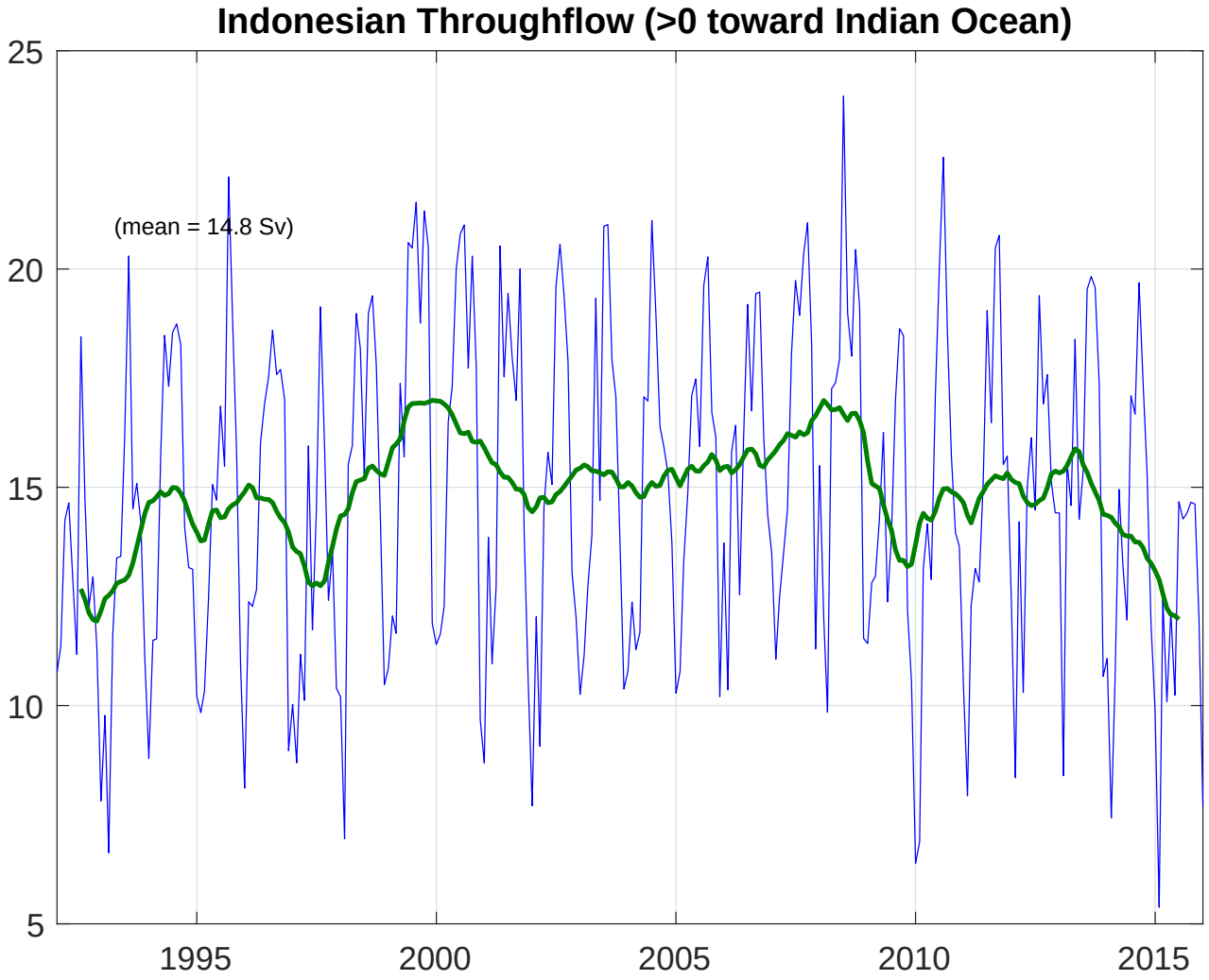

Figure: Indonesian Throughflow (Sv, annual mean)

sea surface height

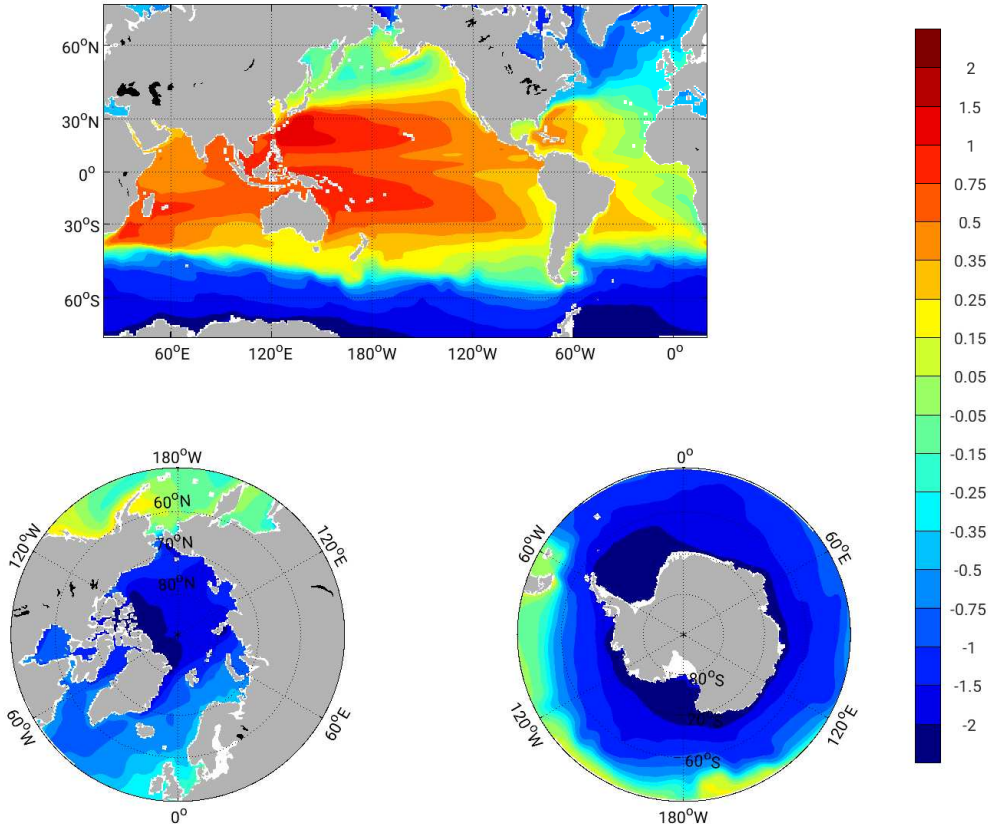

Figure: Sea Surface Height (EXCLUDING sea ice, in m): 1992 thru 2015 Mean

sea surface height

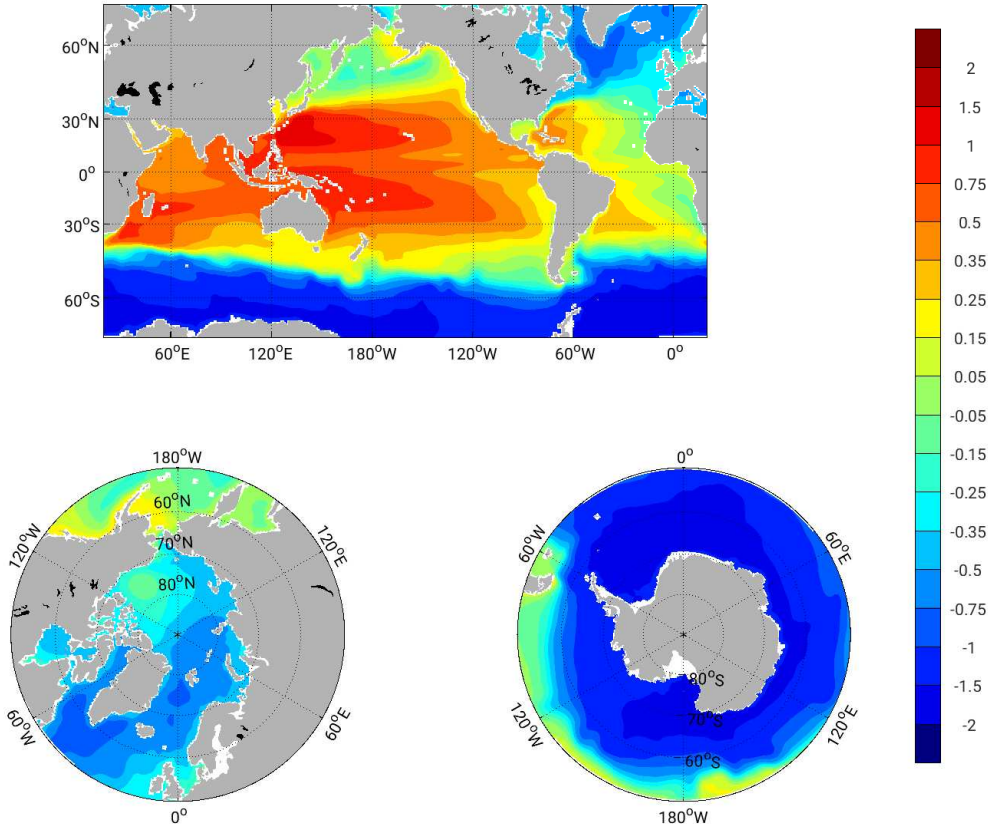

Figure: Sea Surface Height (INCLUDING sea ice, in m): 1992 thru 2015 Mean

sea surface height

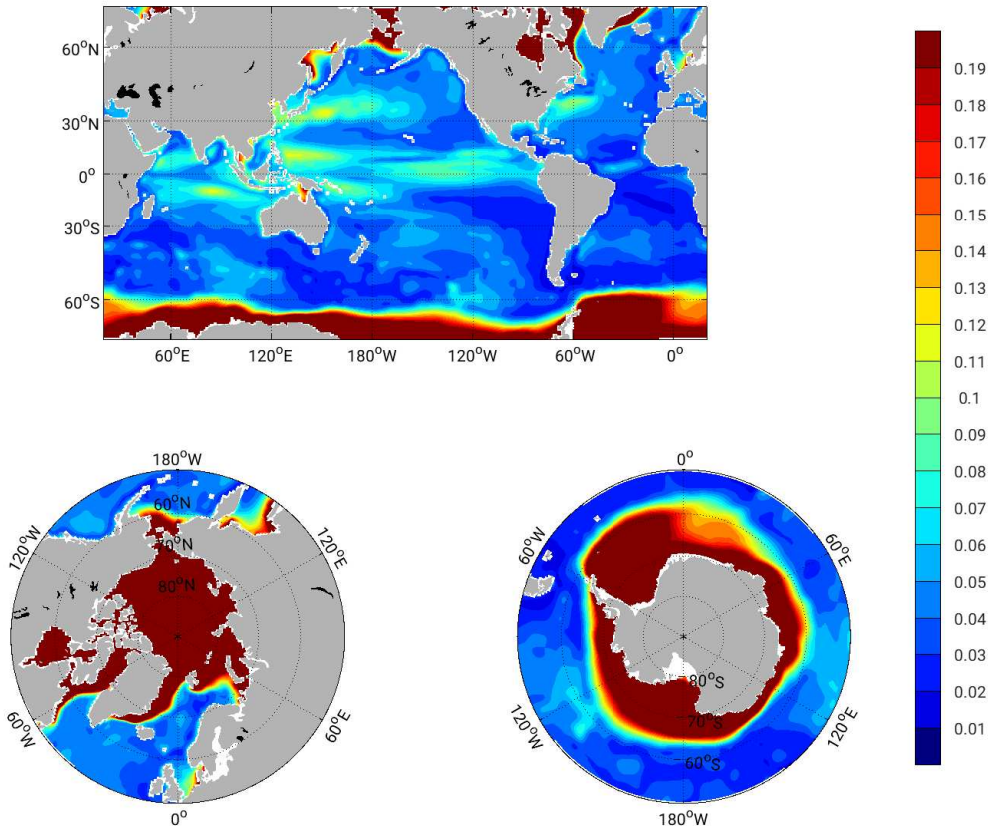

Figure: Sea Surface Height (EXCLUDING sea ice, in m): Standard Deviation, 1992 thru 2015

sea surface height

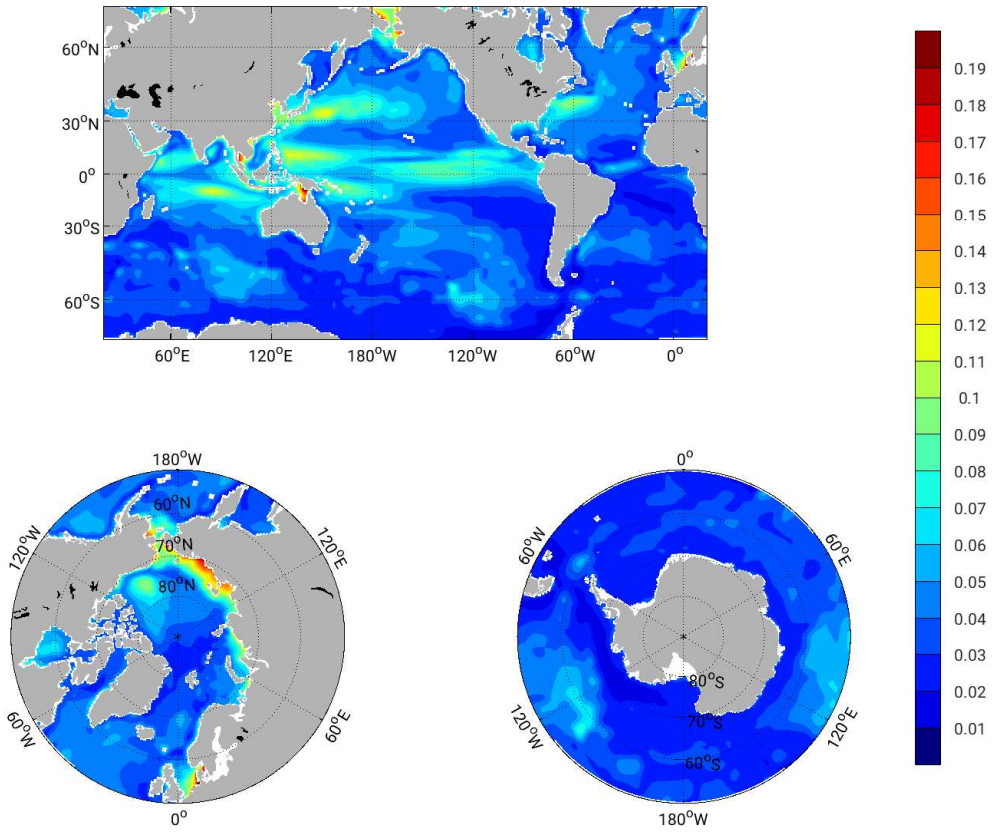

Figure: Sea Surface Height (INCLUDING sea ice, in m): Standard Deviation, 1992 thru 2015

3D state variables

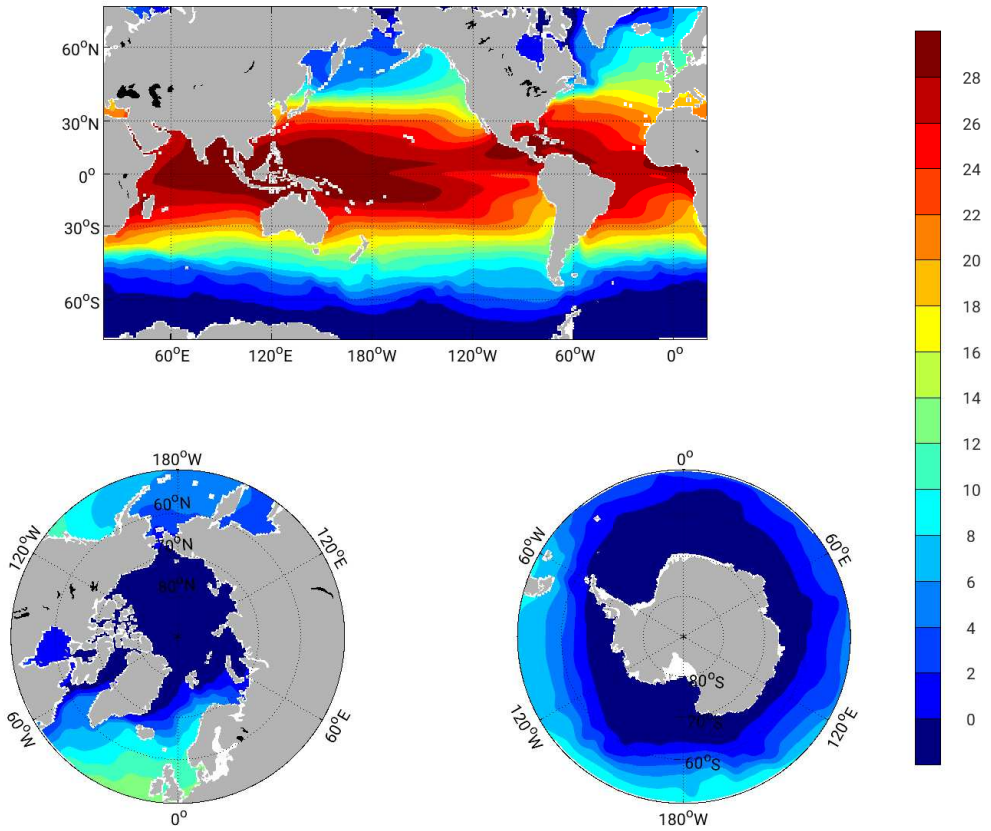

Figure: Temperature (C) at 5m : 1992 thru 2015 Mean

3D state variables

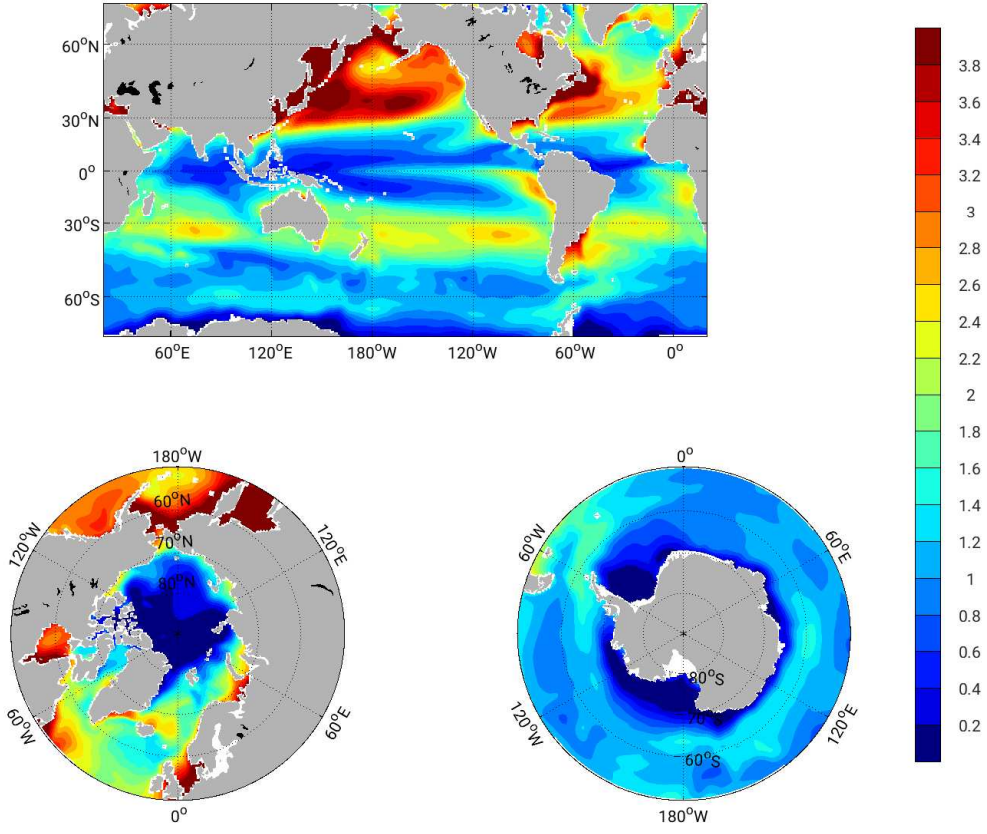

Figure: Temperature (C) at 5m : Standard Deviation, 1992 thru 2015

3D state variables

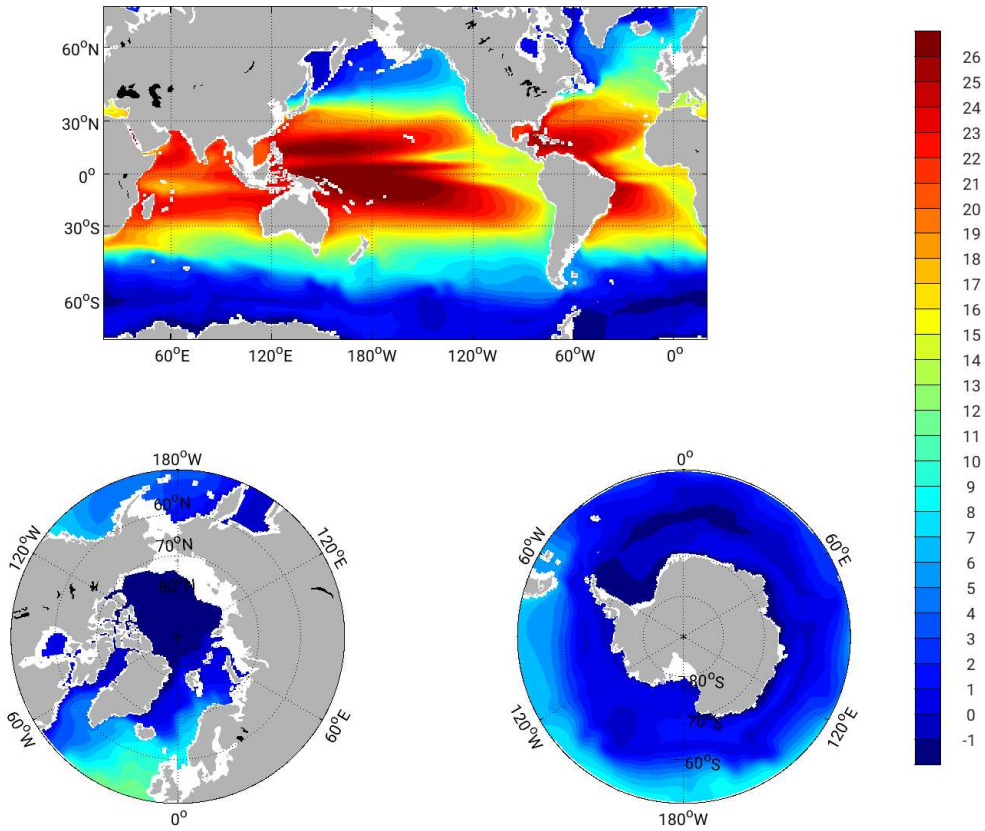

Figure: Temperature (C) at 105m : 1992 thru 2015 Mean

3D state variables

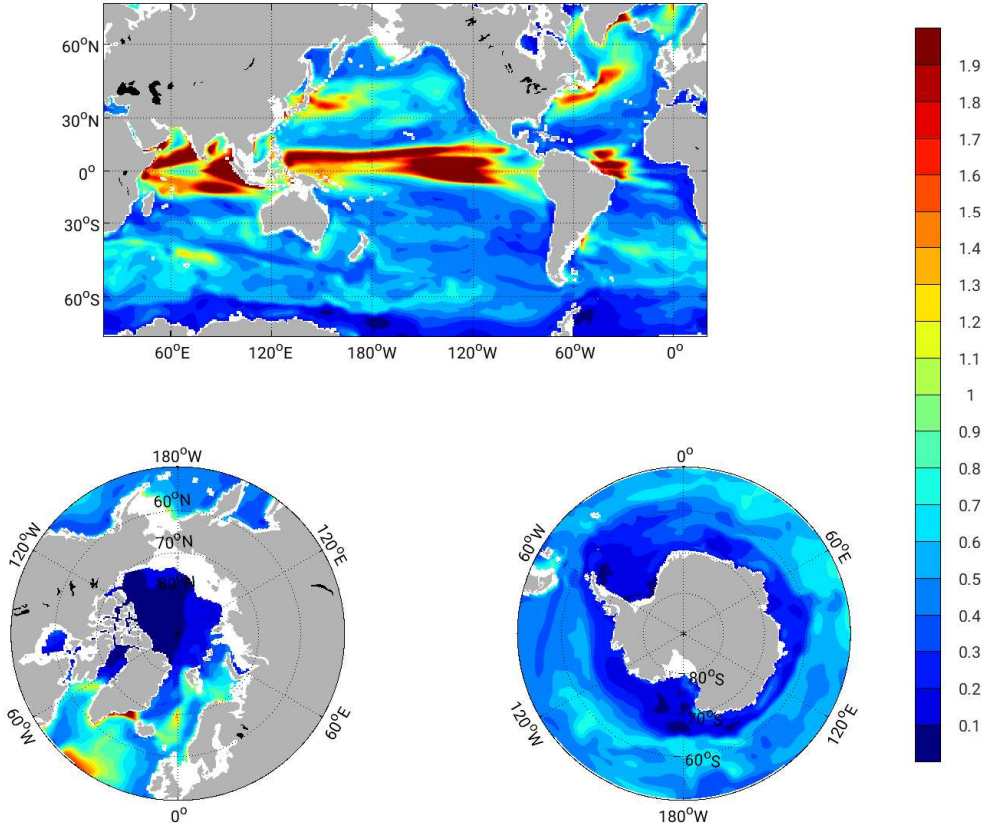

Figure: Temperature (C) at 105m : Standard Deviation, 1992 thru 2015

3D state variables

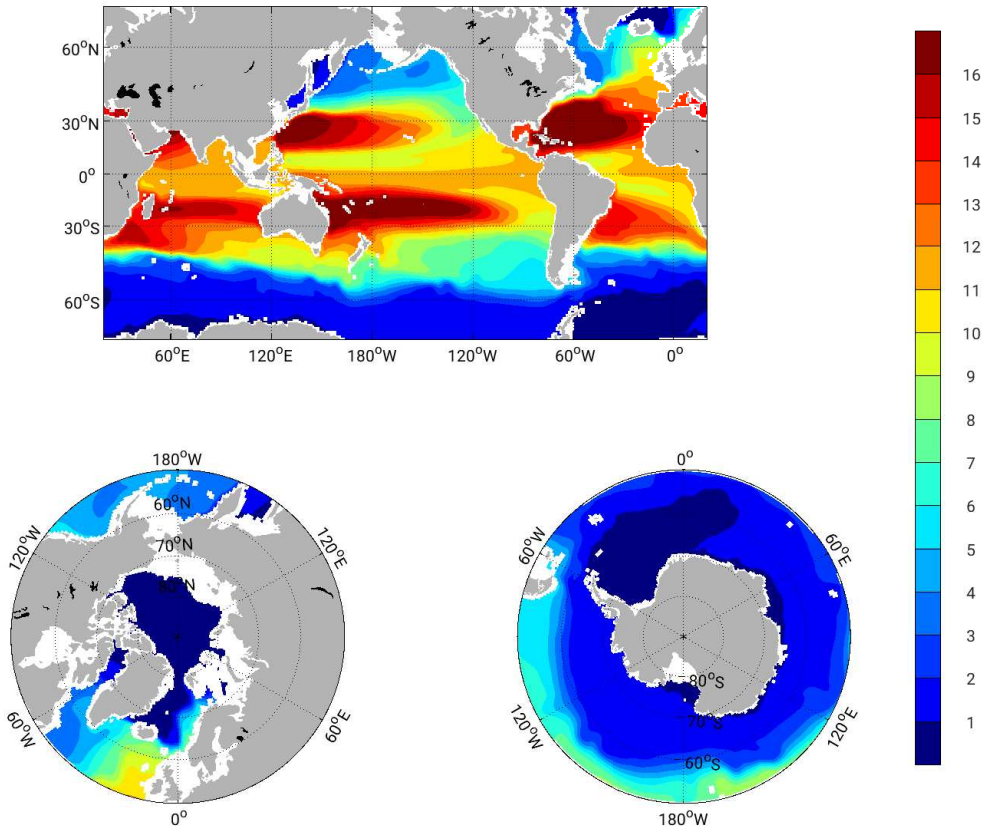

Figure: Temperature (C) at 300m : 1992 thru 2015 Mean

3D state variables

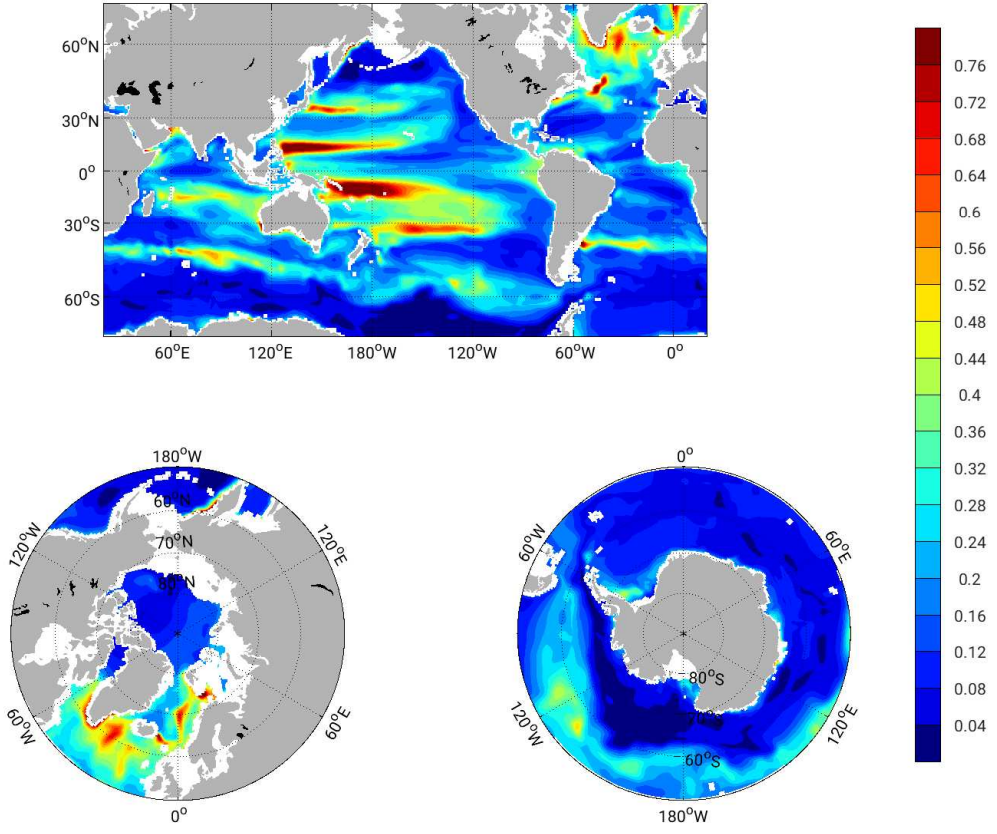

Figure: Temperature (C) at 300m : Standard Deviation, 1992 thru 2015

3D state variables

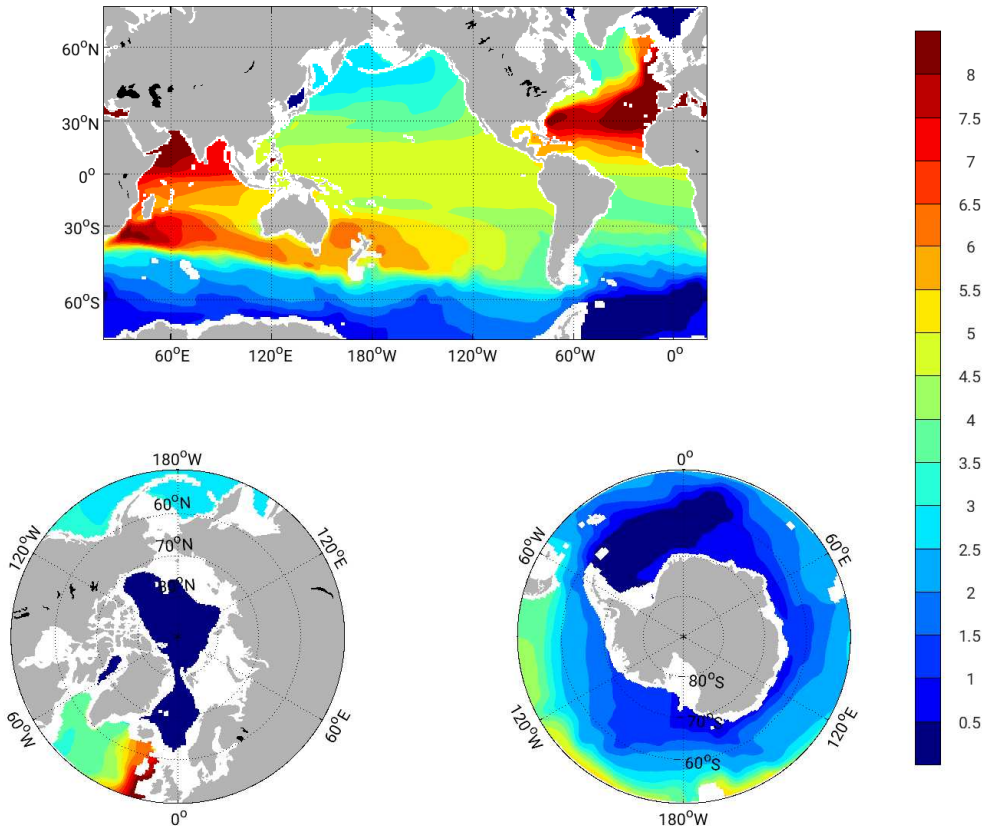

Figure: Temperature (C) at 910m : 1992 thru 2015 Mean

3D state variables

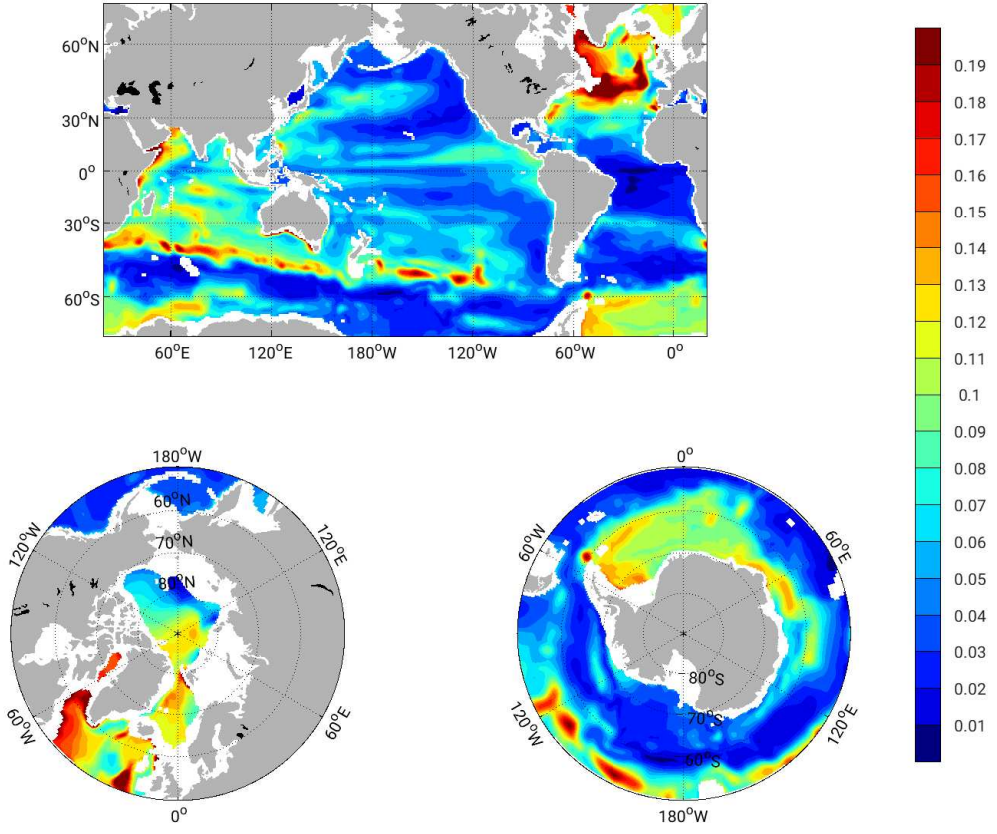

Figure: Temperature (C) at 910m : Standard Deviation, 1992 thru 2015

3D state variables

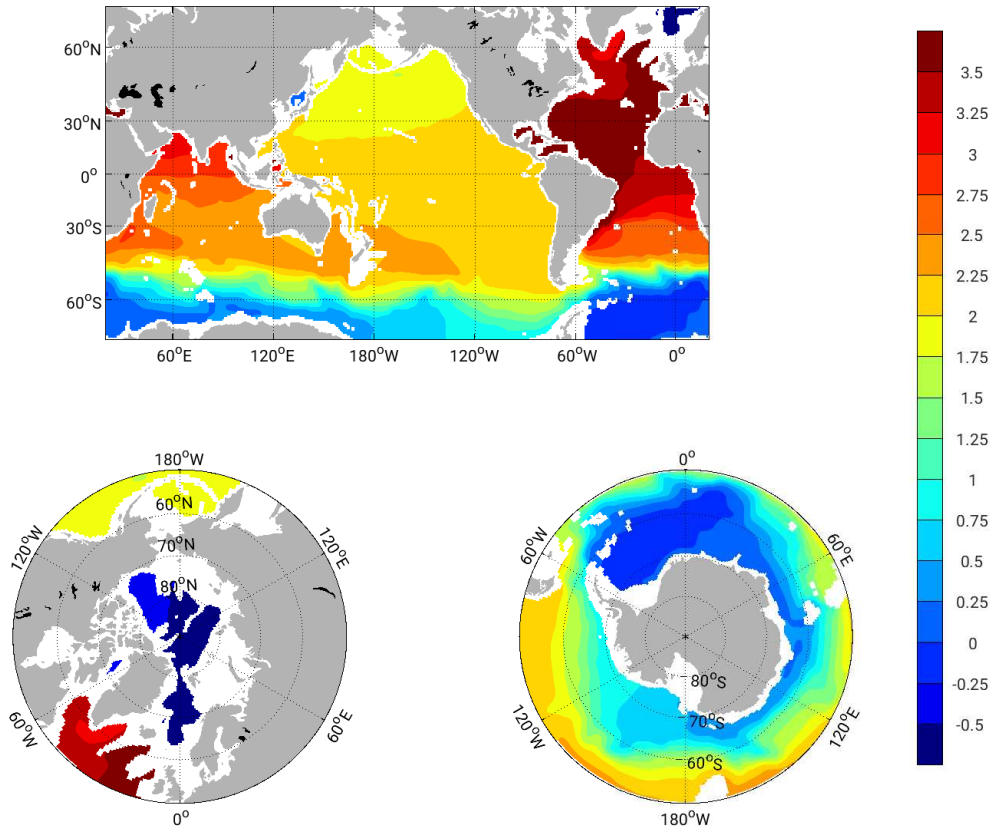

Figure: Temperature (C) at 1914m : 1992 thru 2015 Mean

3D state variables

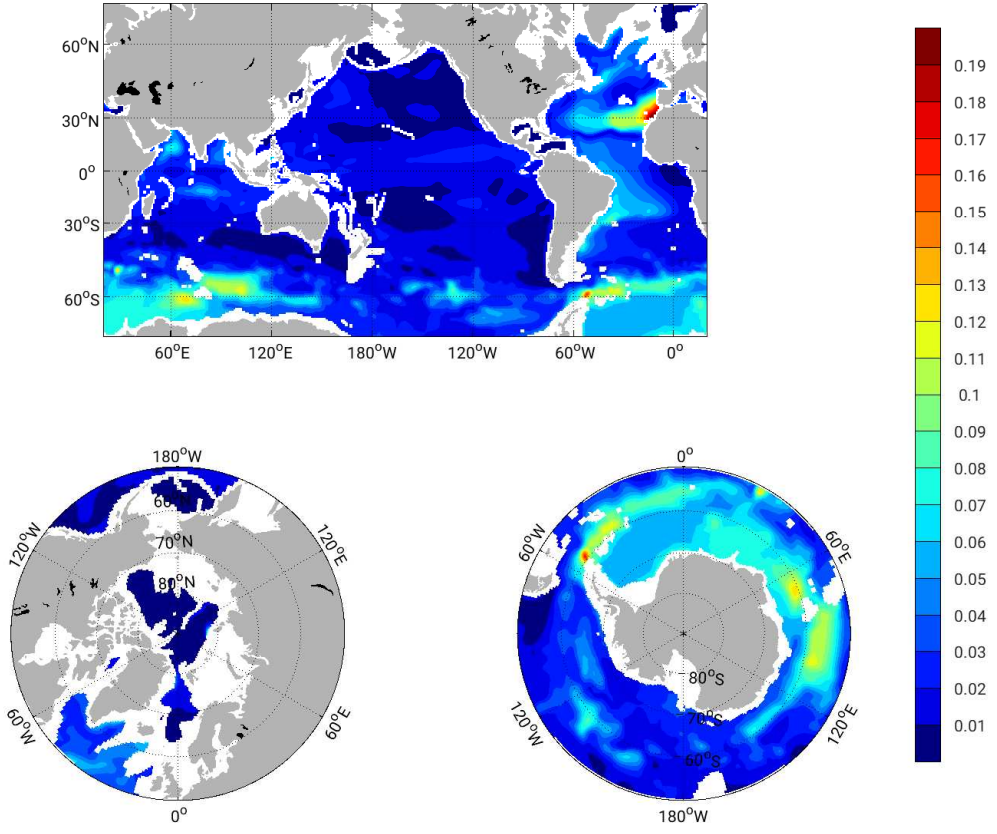

Figure: Temperature (C) at 1914m : Standard Deviation, 1992 thru 2015

3D state variables

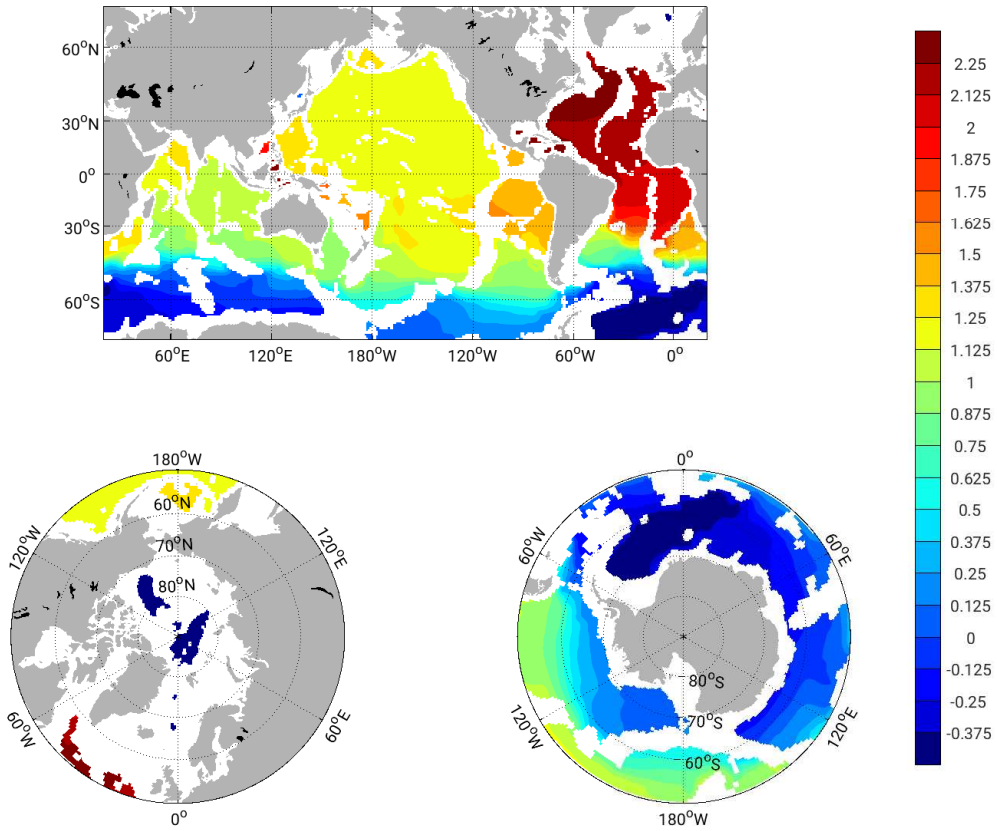

Figure: Temperature (C) at 3581m : 1992 thru 2015 Mean

3D state variables

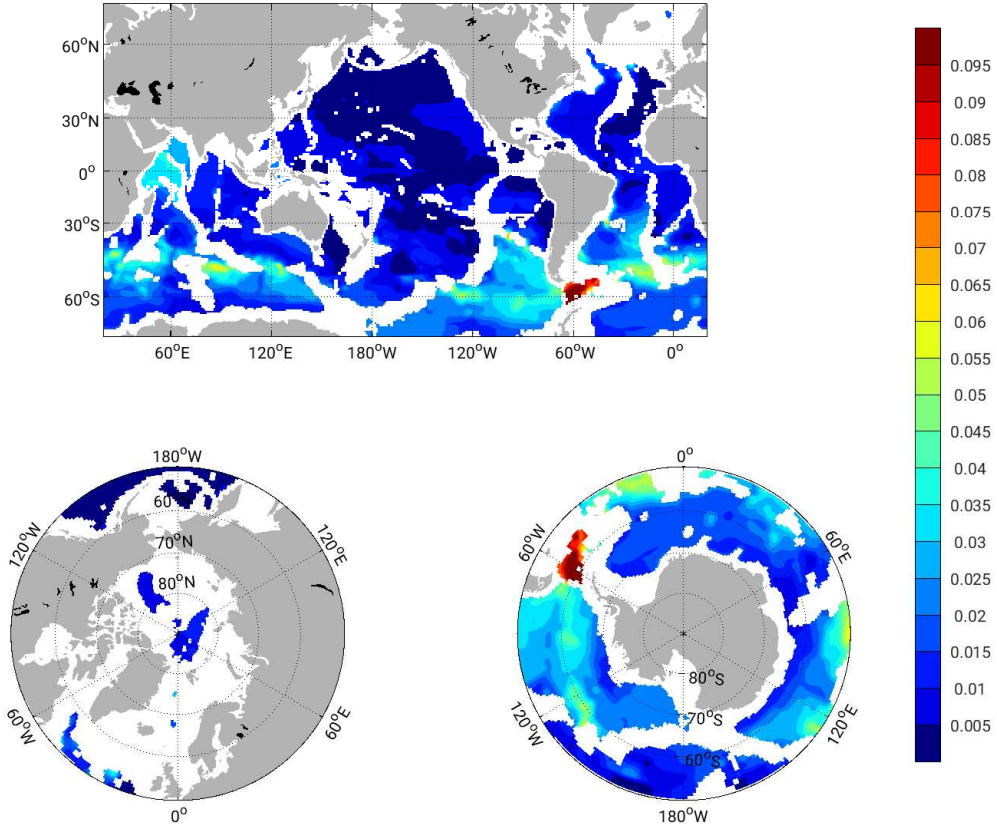

Figure: Temperature (C) at 3581m : Standard Deviation, 1992 thru 2015

3D state variables

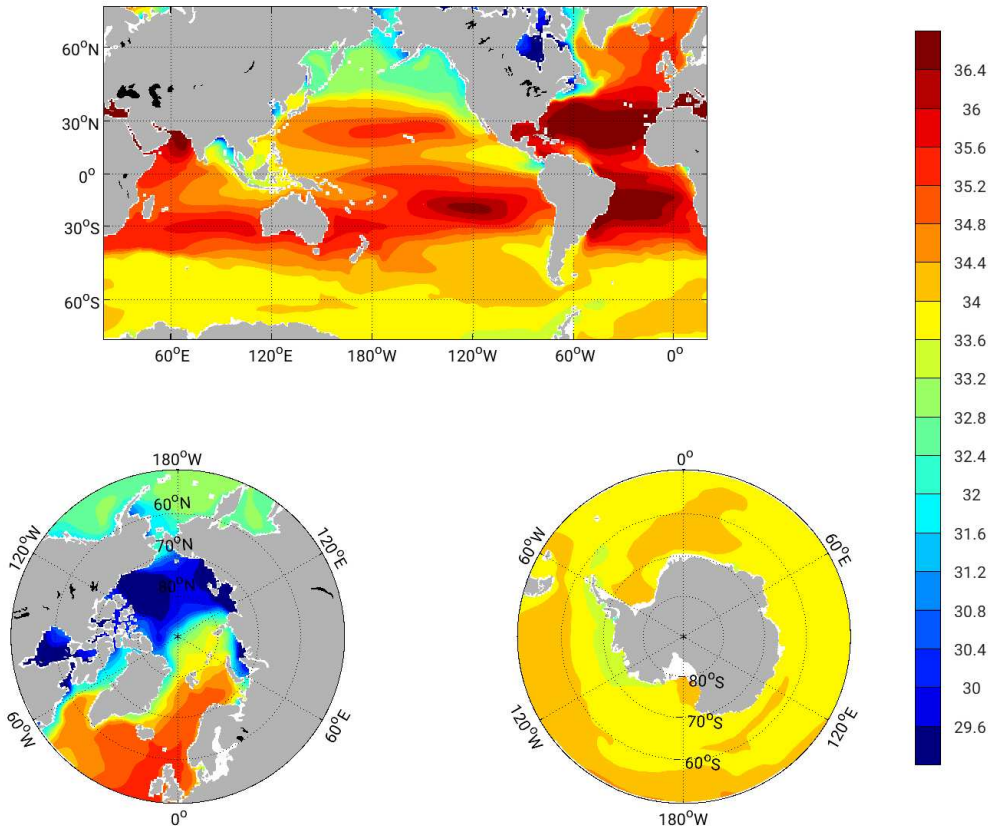

Figure: Salinity (psu) at 5m : 1992 thru 2015 Mean

3D state variables

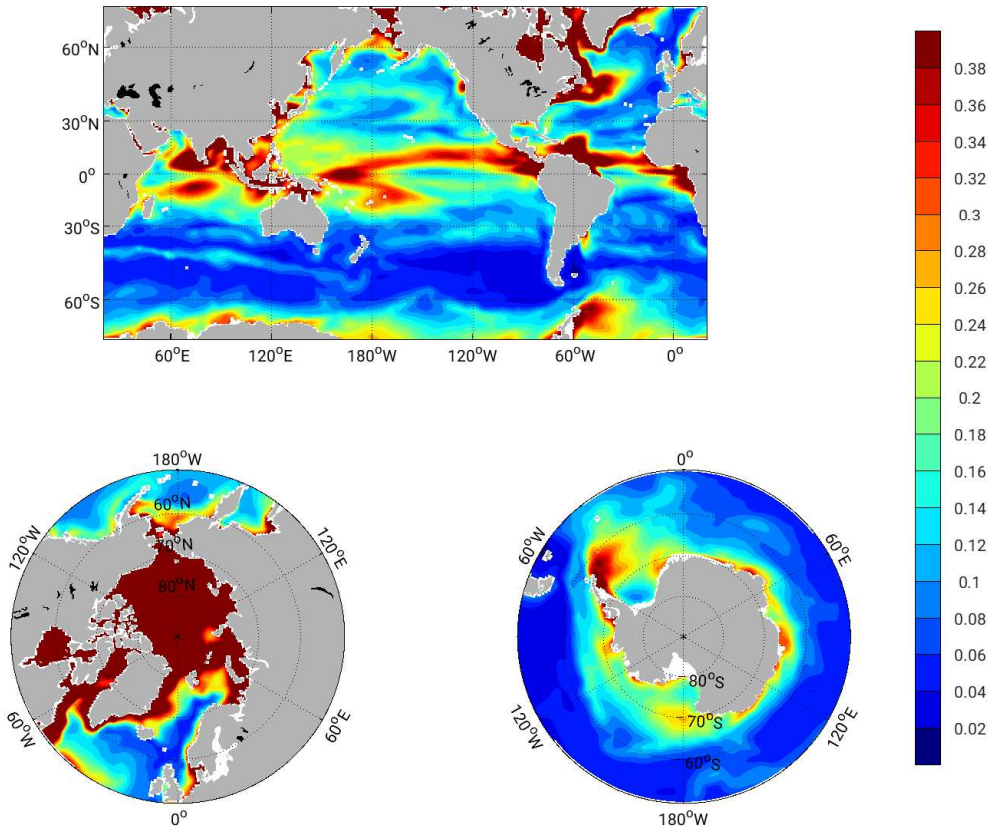

Figure: Salinity (psu) at 5m : Standard Deviation, 1992 thru 2015

3D state variables

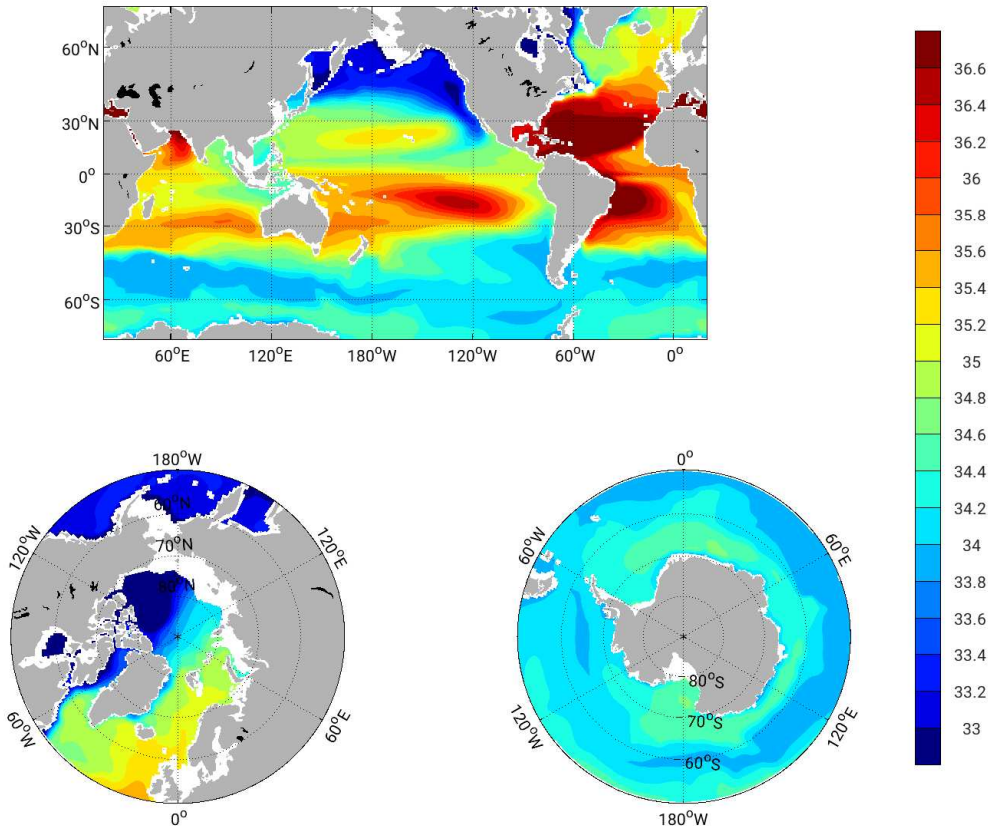

Figure: Salinity (psu) at 105m : 1992 thru 2015 Mean

3D state variables

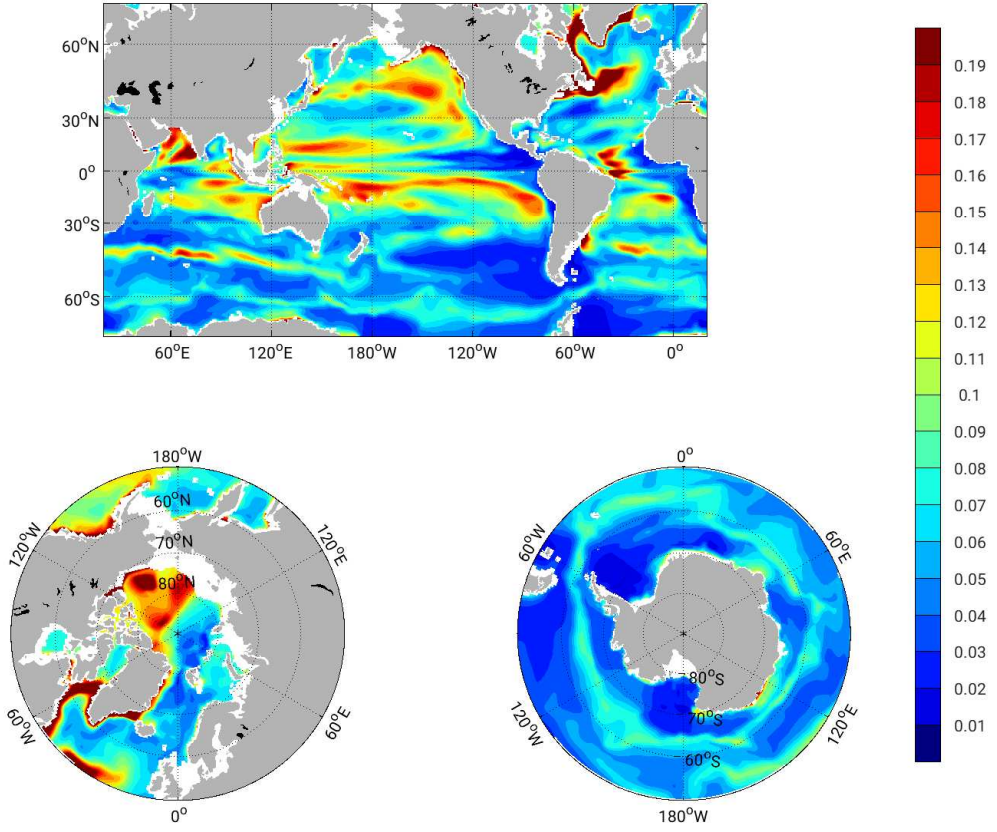

Figure: Salinity (psu) at 105m : Standard Deviation, 1992 thru 2015

3D state variables

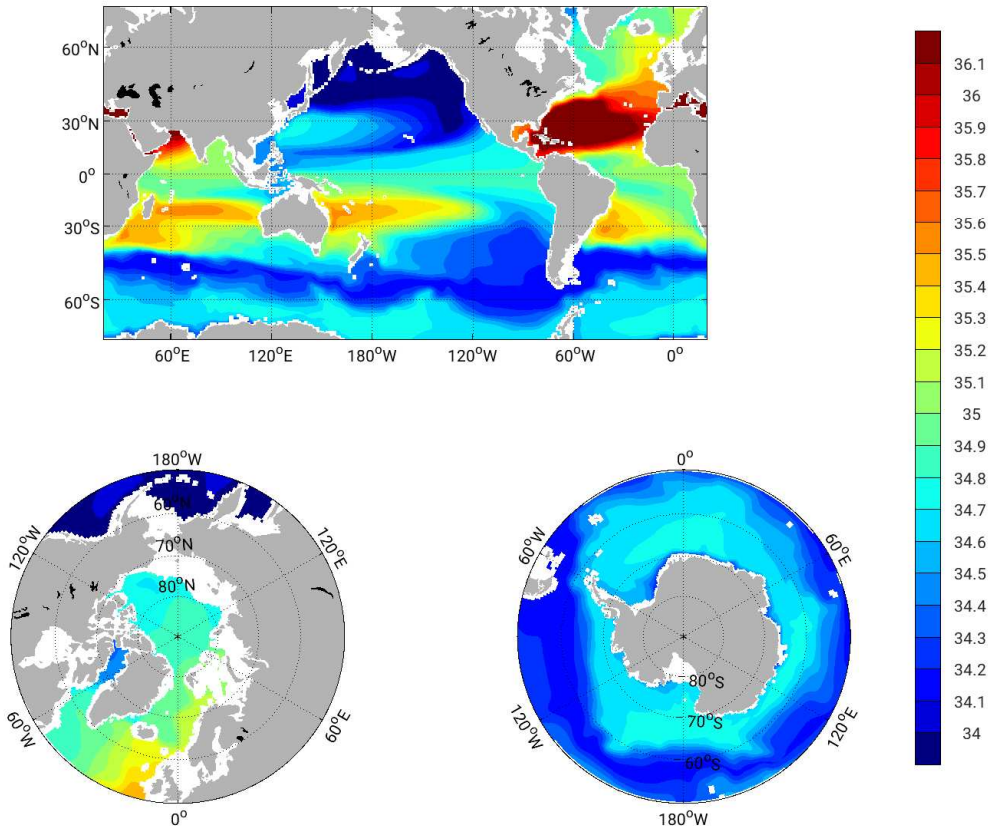

Figure: Salinity (psu) at 300m : 1992 thru 2015 Mean

3D state variables

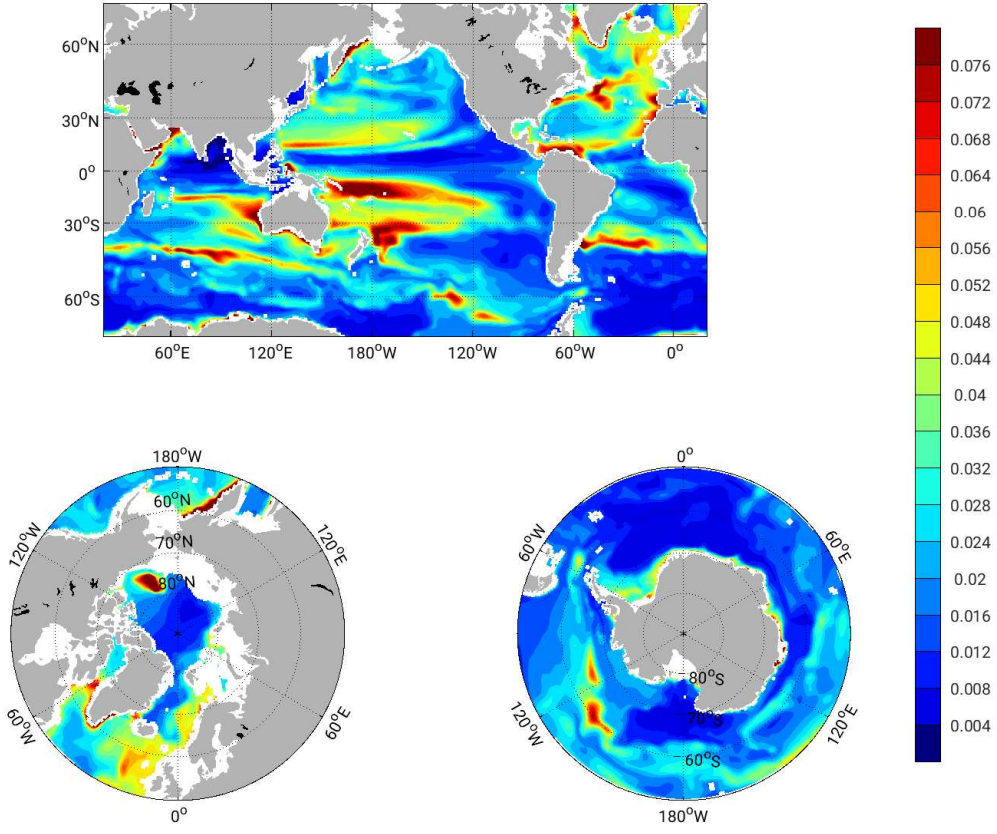

Figure: Salinity (psu) at 300m : Standard Deviation, 1992 thru 2015

3D state variables

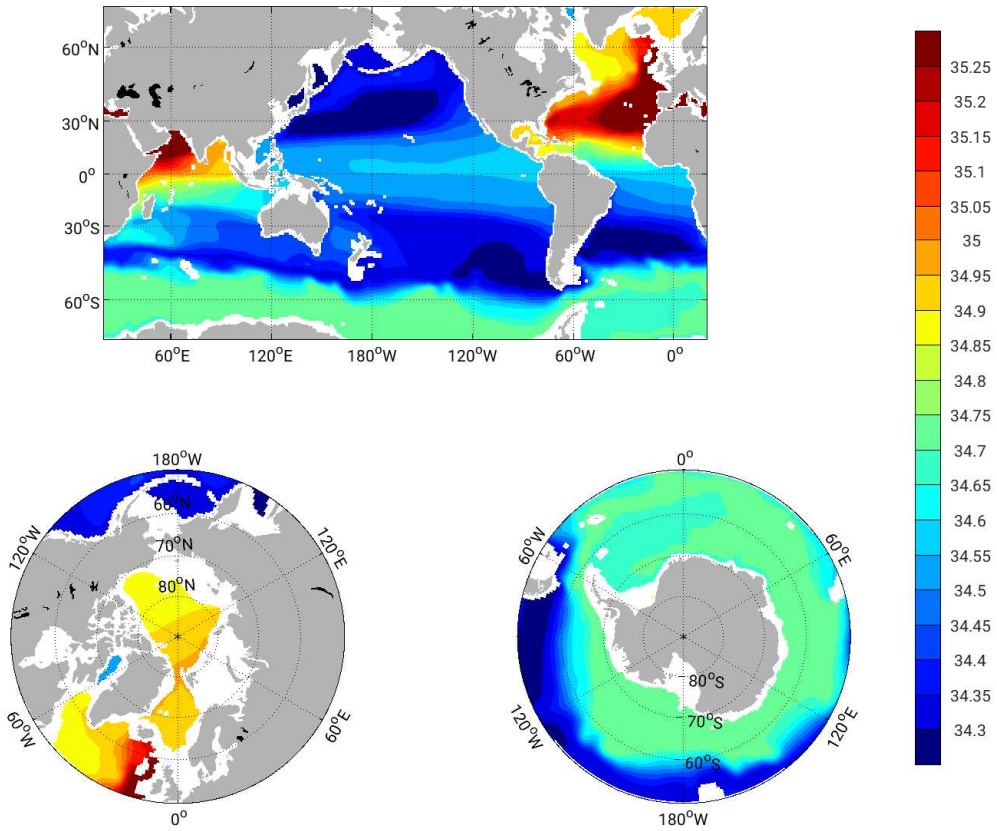

Figure: Salinity (psu) at 910m : 1992 thru 2015 Mean

3D state variables

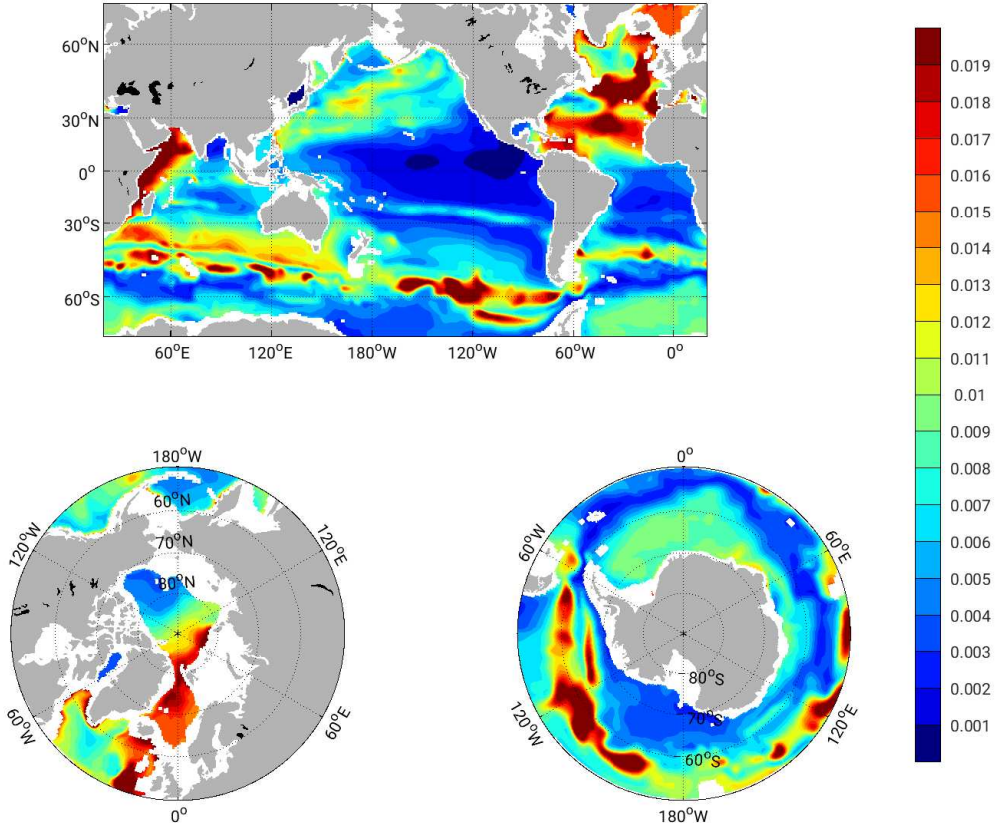

Figure: Salinity (psu) at 910m : Standard Deviation, 1992 thru 2015

3D state variables

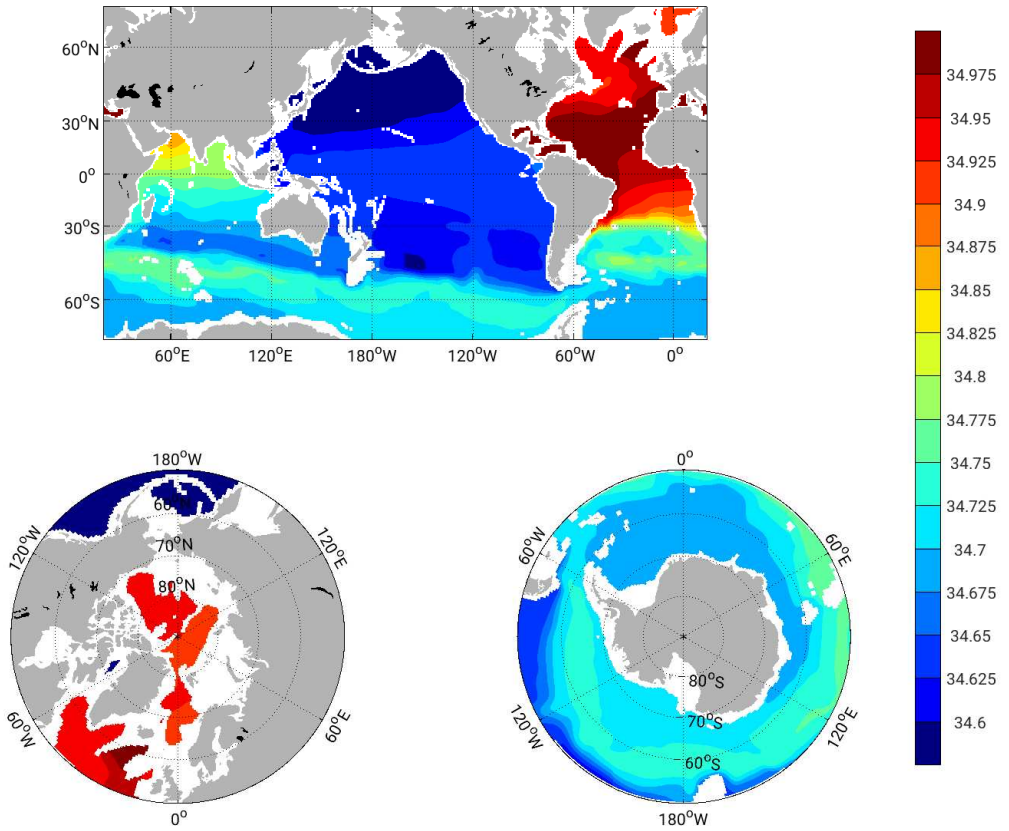

Figure: Salinity (psu) at 1914m : 1992 thru 2015 Mean

3D state variables

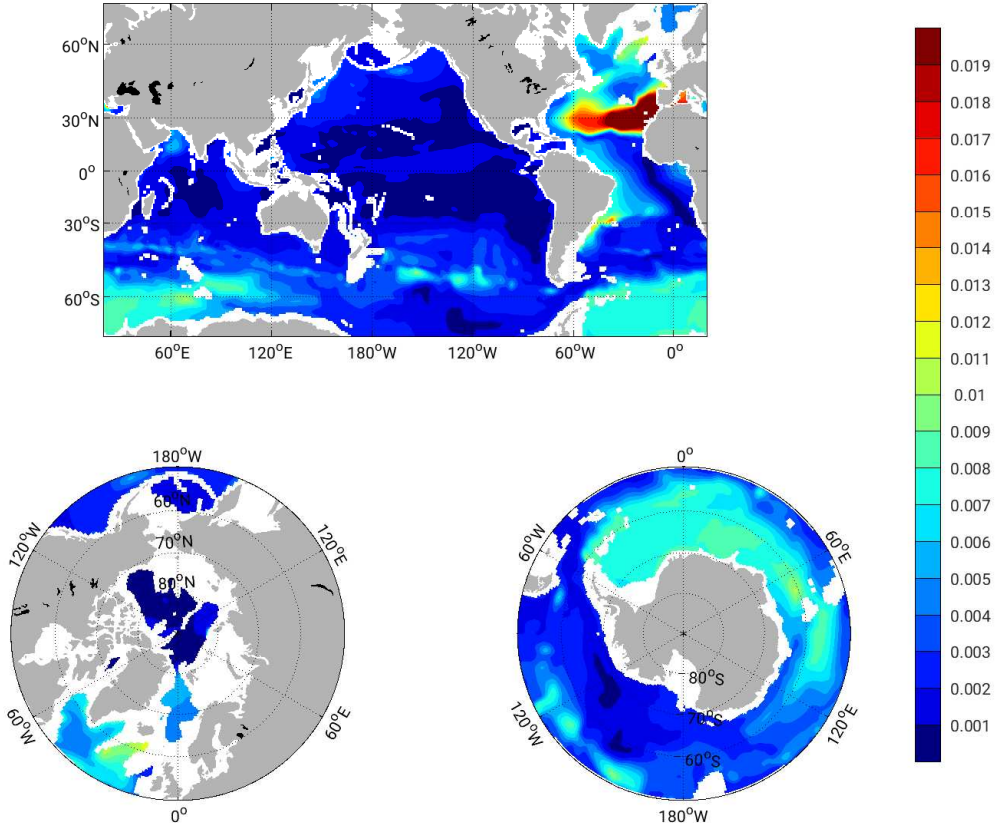

Figure: Salinity (psu) at 1914m : Standard Deviation, 1992 thru 2015

3D state variables

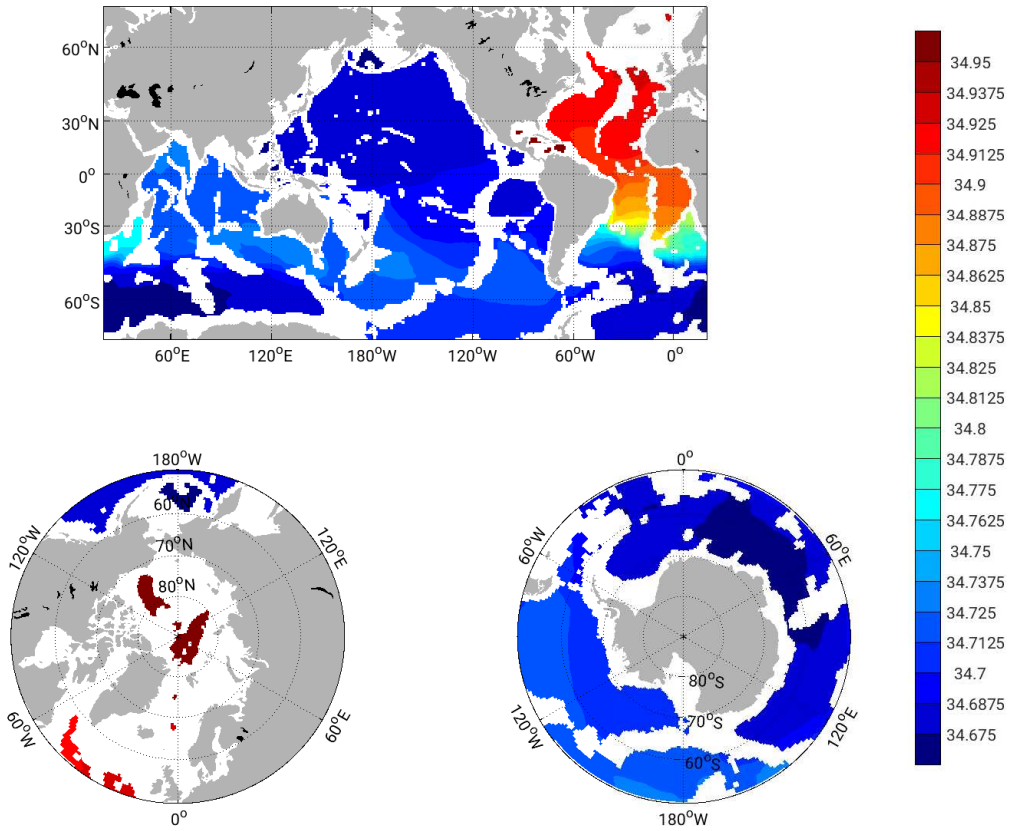

Figure: Salinity (psu) at 3581m : 1992 thru 2015 Mean

3D state variables

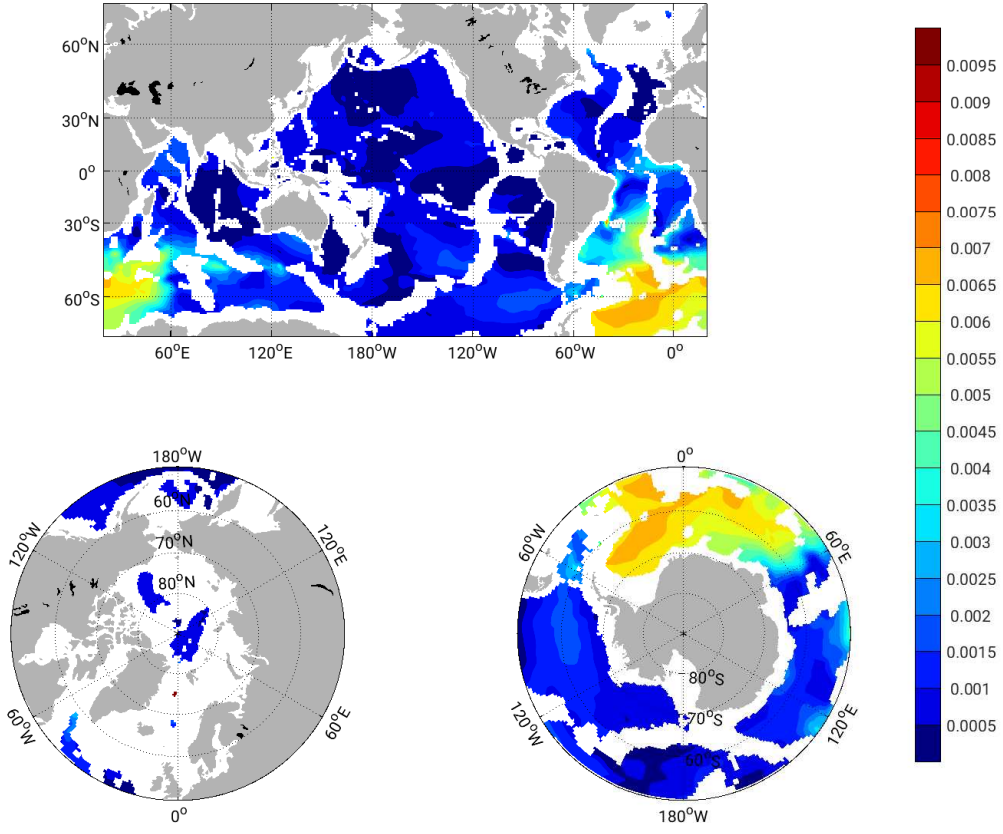

Figure: Salinity (psu) at 3581m : Standard Deviation, 1992 thru 2015

3D state variables

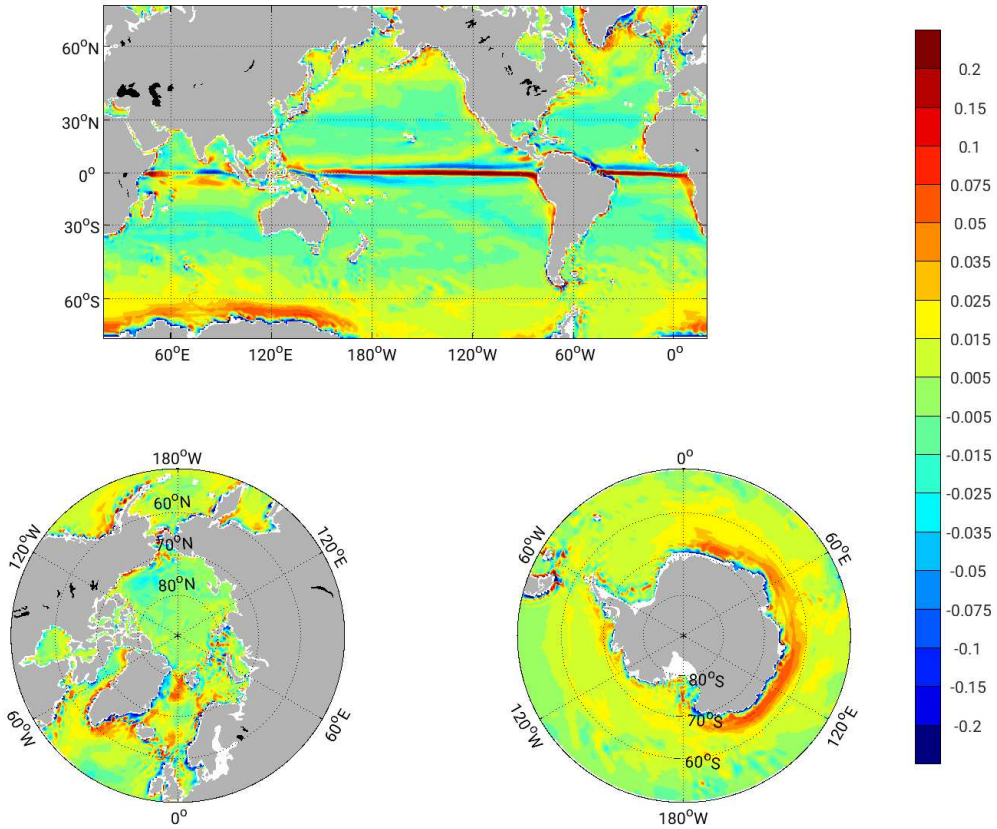

Figure: Vertical Velocity (mm/year) at 15m : 1992 thru 2015 Mean

3D state variables

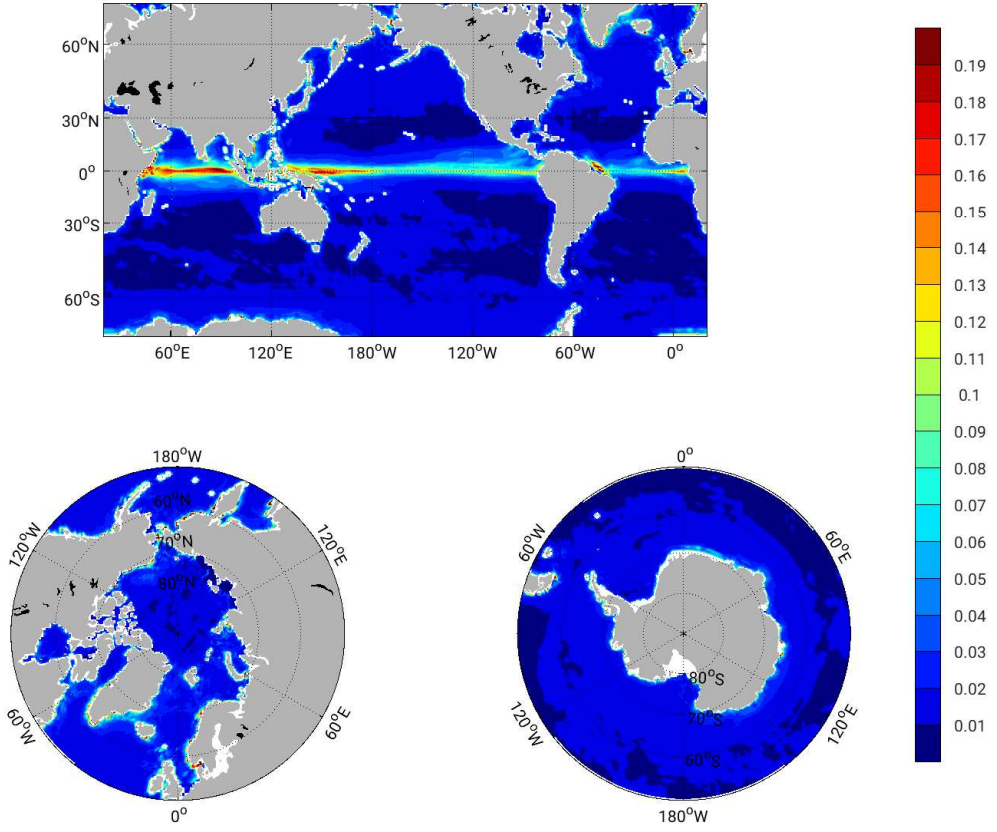

Figure: Vertical Velocity (mm/year) at 15m : Standard Deviation, 1992 thru 2015

3D state variables

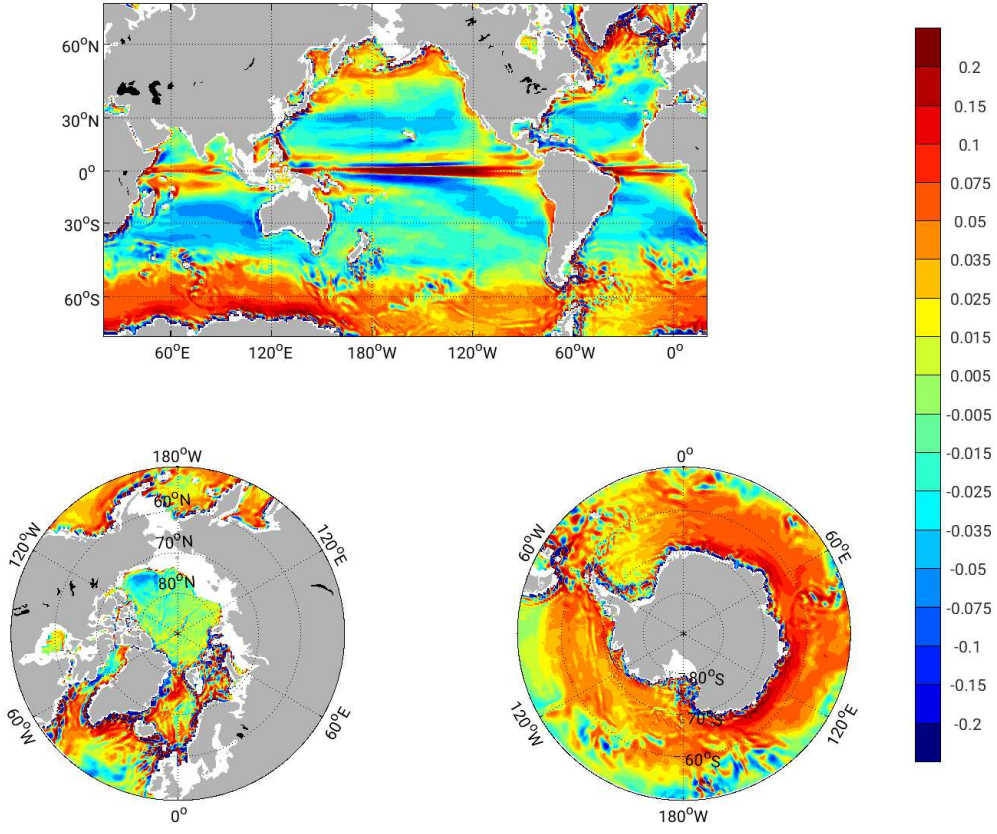

Figure: Vertical Velocity (mm/year) at 105m : 1992 thru 2015 Mean

3D state variables

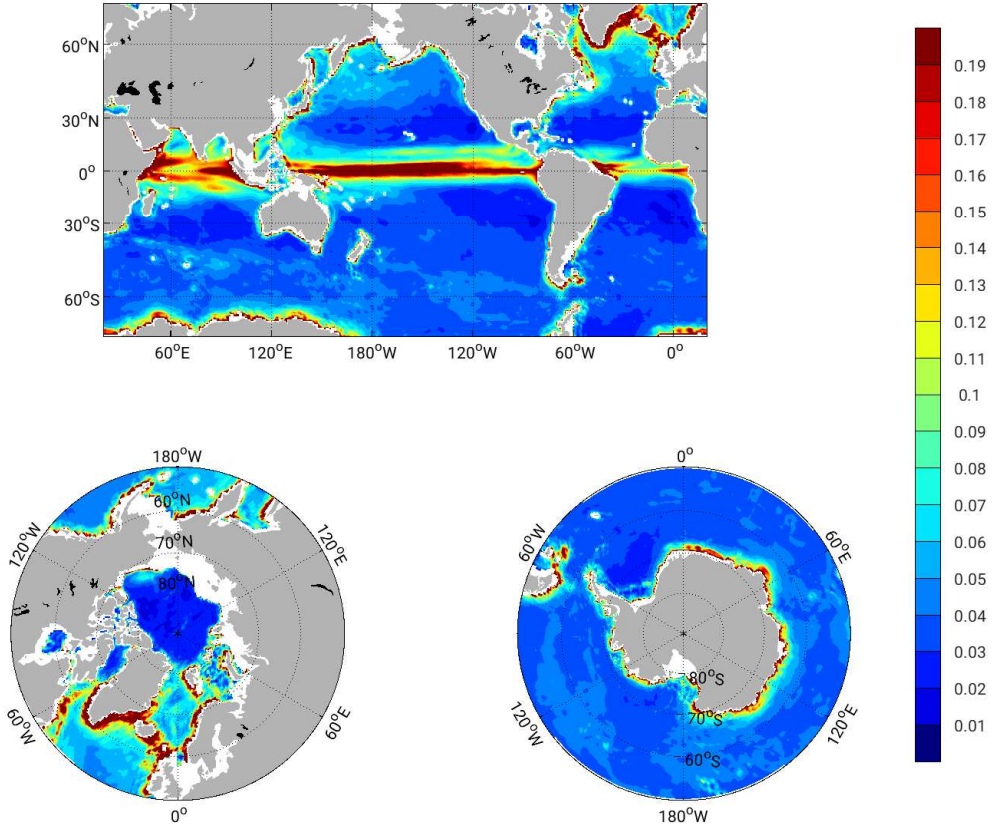

Figure: Vertical Velocity (mm/year) at 105m : Standard Deviation, 1992 thru 2015

3D state variables

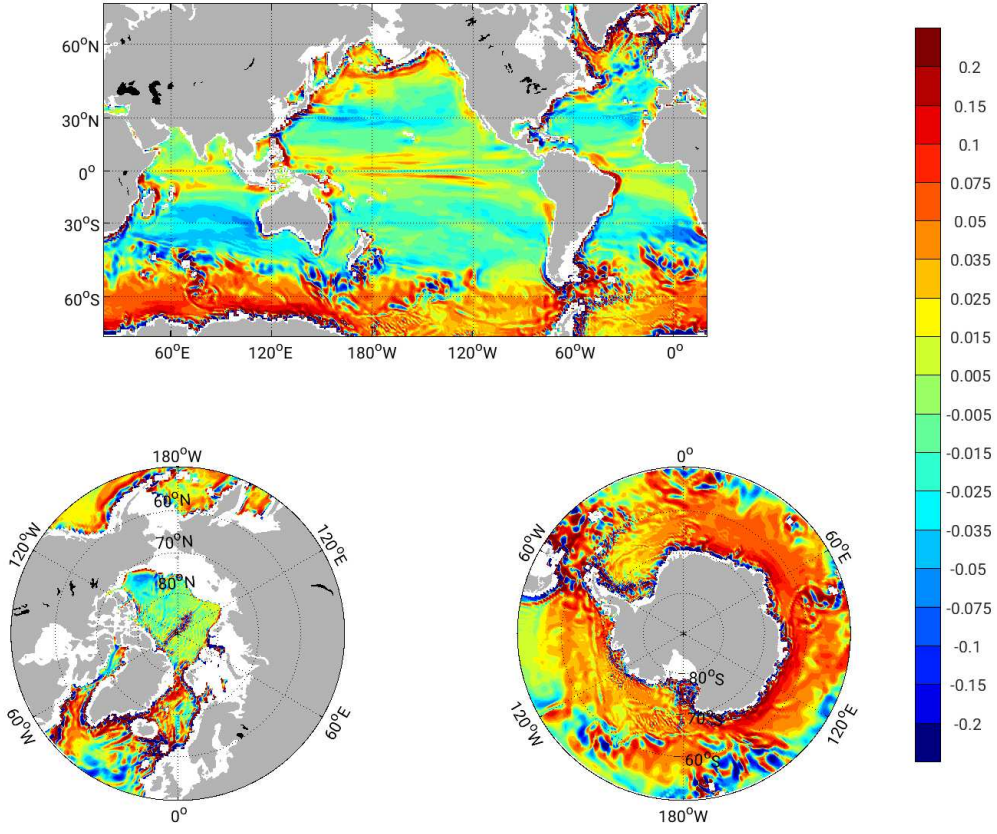

Figure: Vertical Velocity (mm/year) at 300m : 1992 thru 2015 Mean

3D state variables

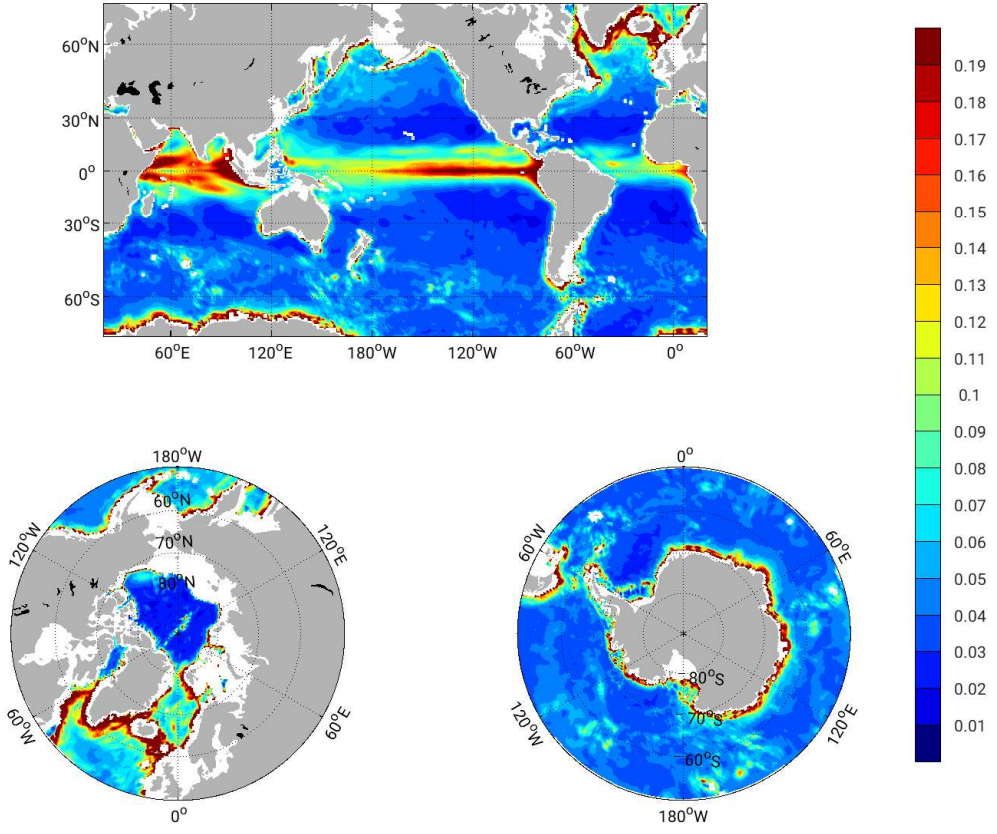

Figure: Vertical Velocity (mm/year) at 300m : Standard Deviation, 1992 thru 2015

3D state variables

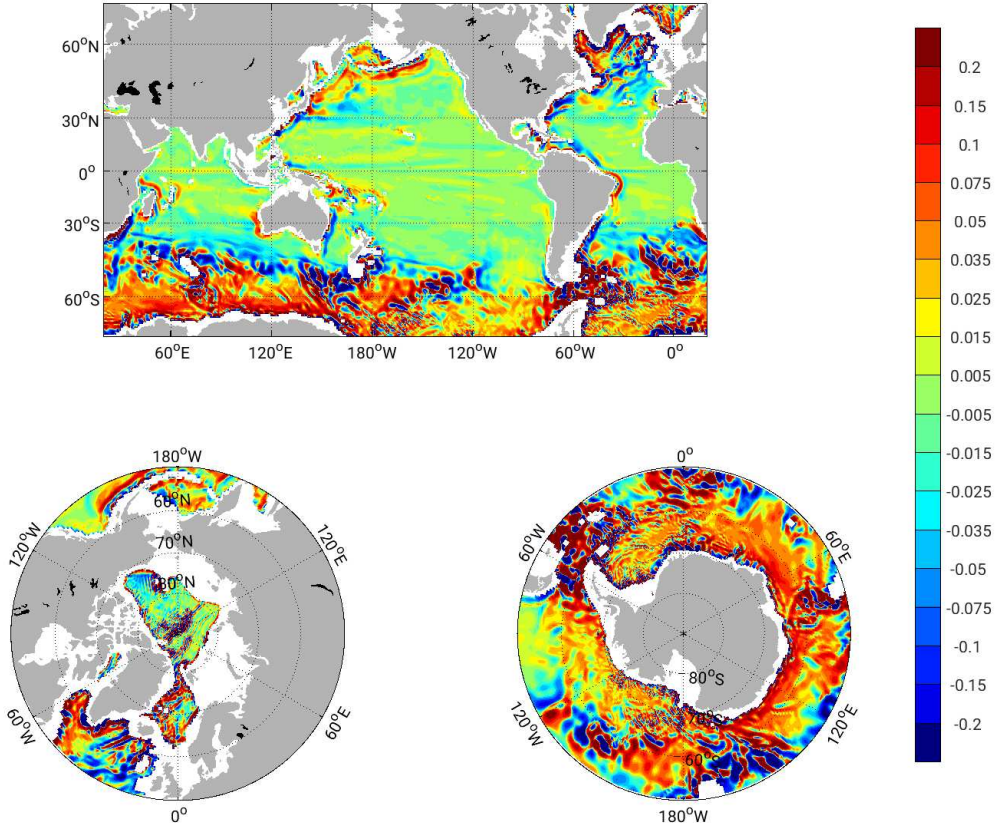

Figure: Vertical Velocity (mm/year) at 910m : 1992 thru 2015 Mean

3D state variables

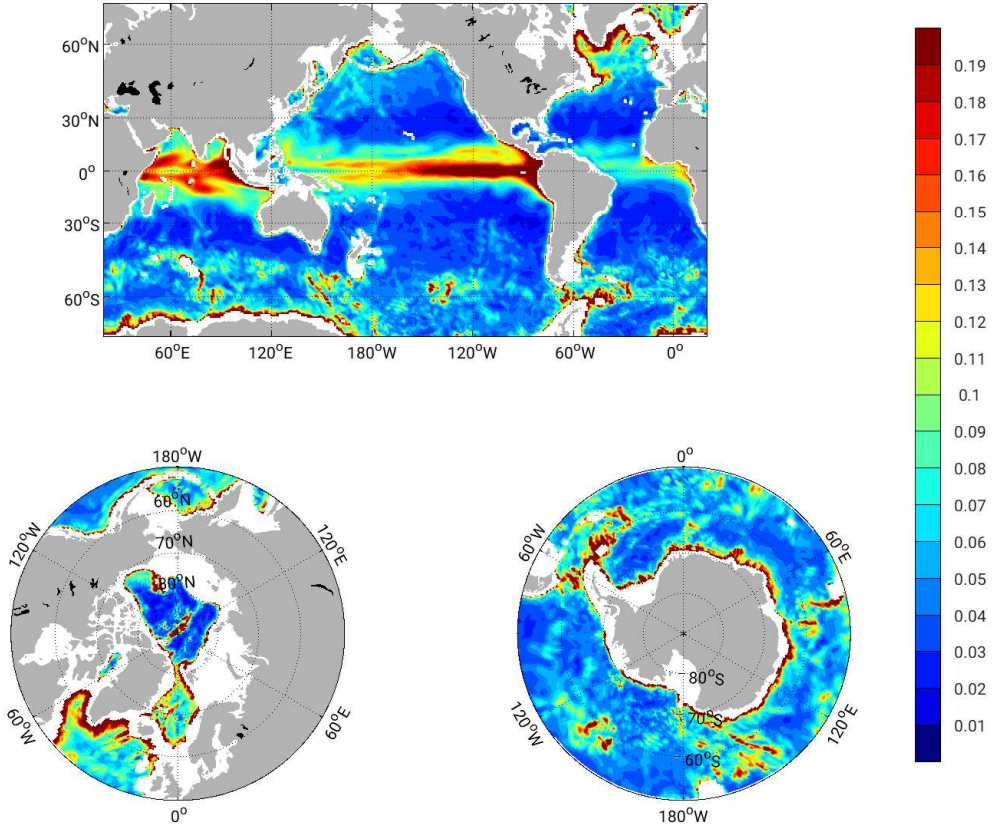

Figure: Vertical Velocity (mm/year) at 910m : Standard Deviation, 1992 thru 2015

3D state variables

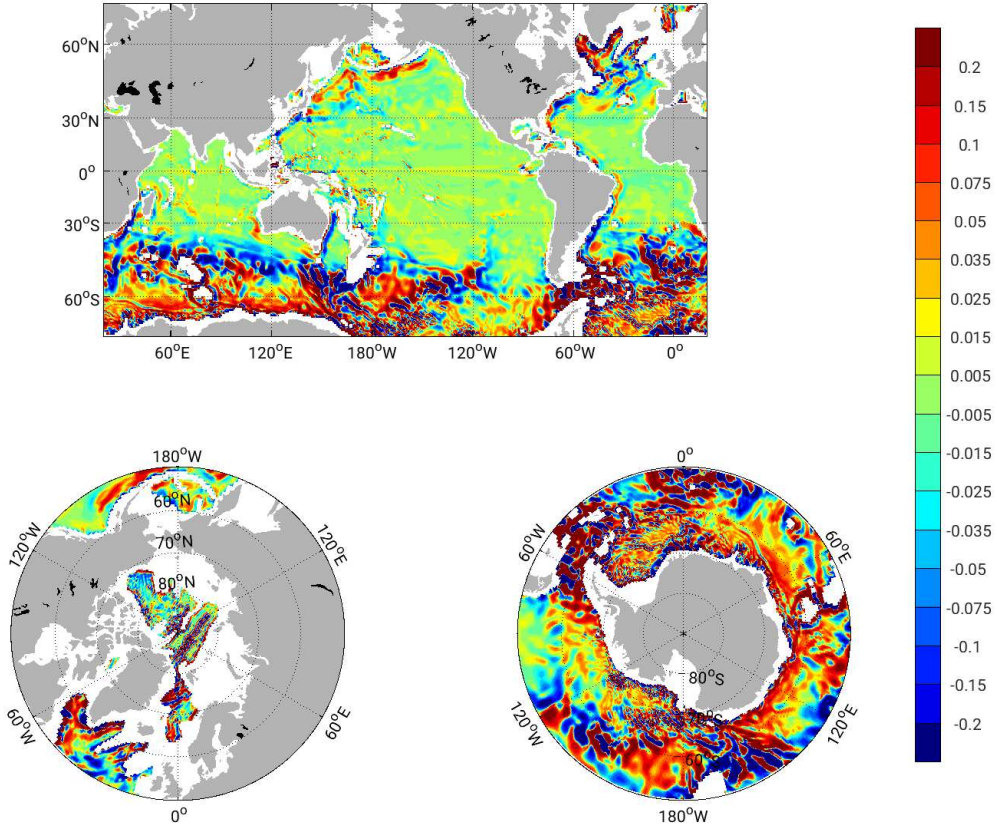

Figure: Vertical Velocity (mm/year) at 1914m : 1992 thru 2015 Mean

3D state variables

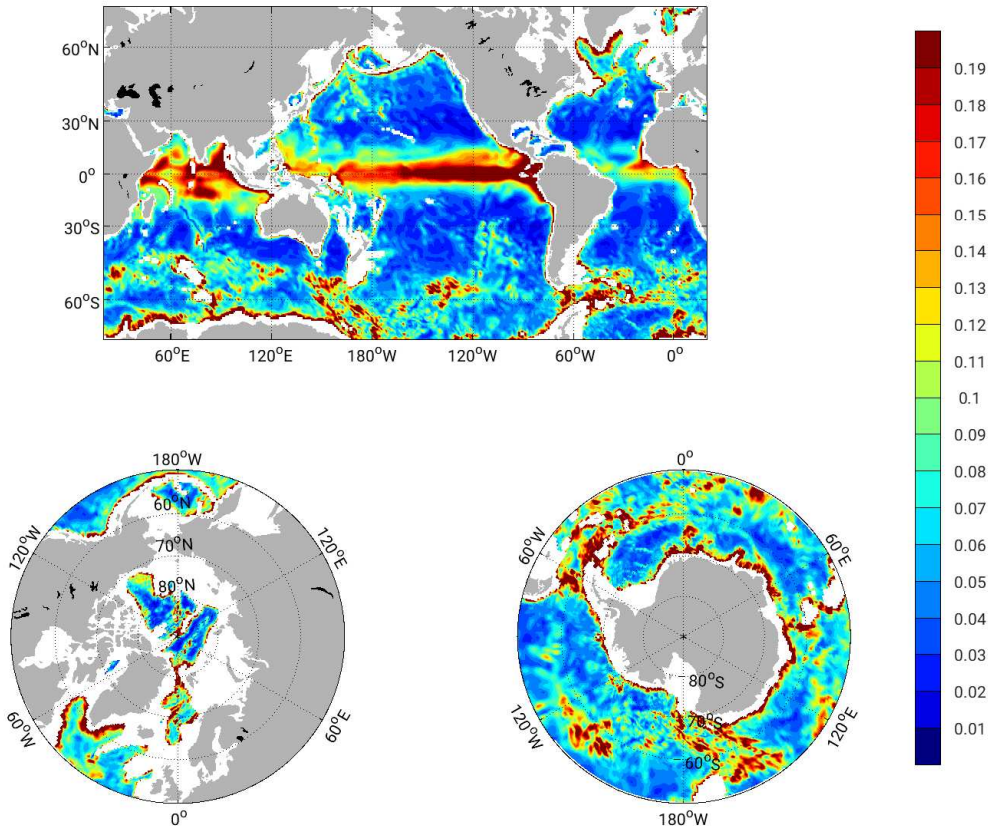

Figure: Vertical Velocity (mm/year) at 1914m : Standard Deviation, 1992 thru 2015

3D state variables

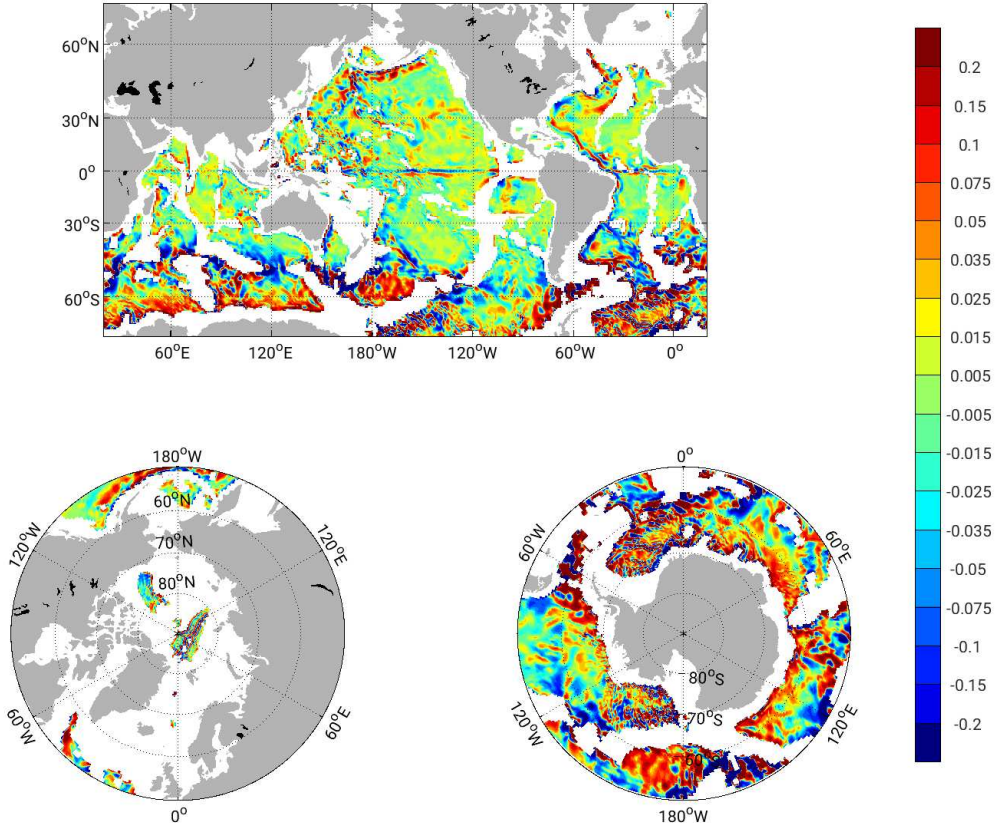

Figure: Vertical Velocity (mm/year) at 3581m : 1992 thru 2015 Mean

3D state variables

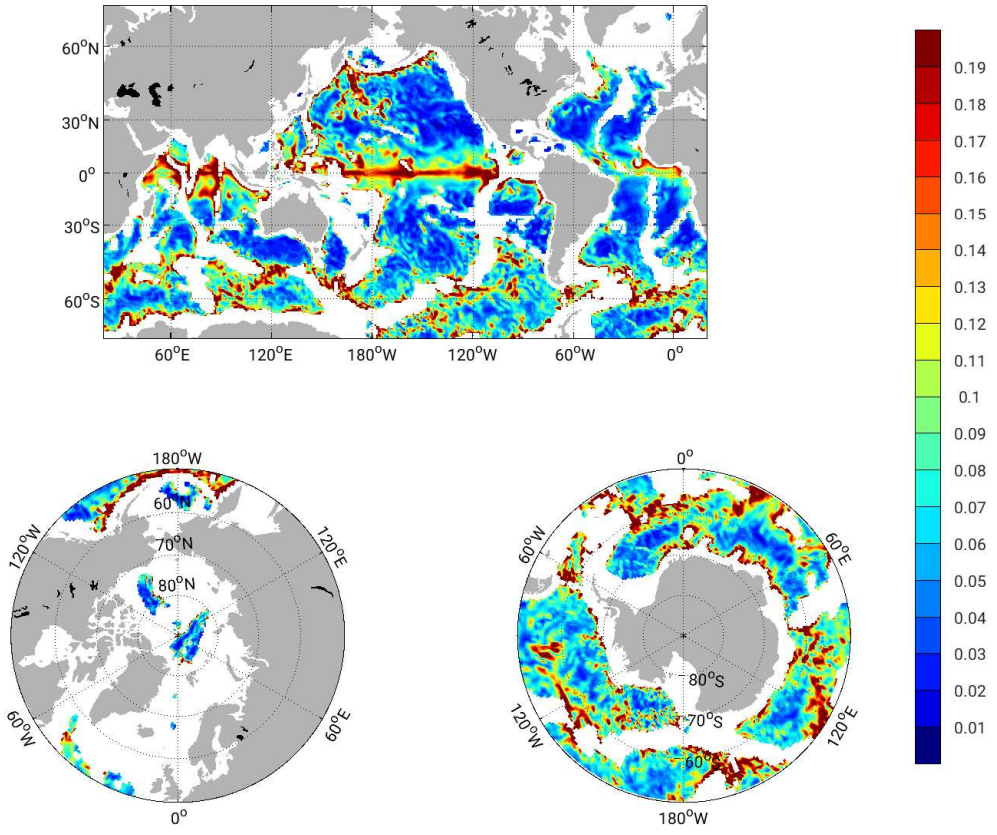

Figure: Vertical Velocity (mm/year) at 3581m : Standard Deviation, 1992 thru 2015

air-sea heat flux

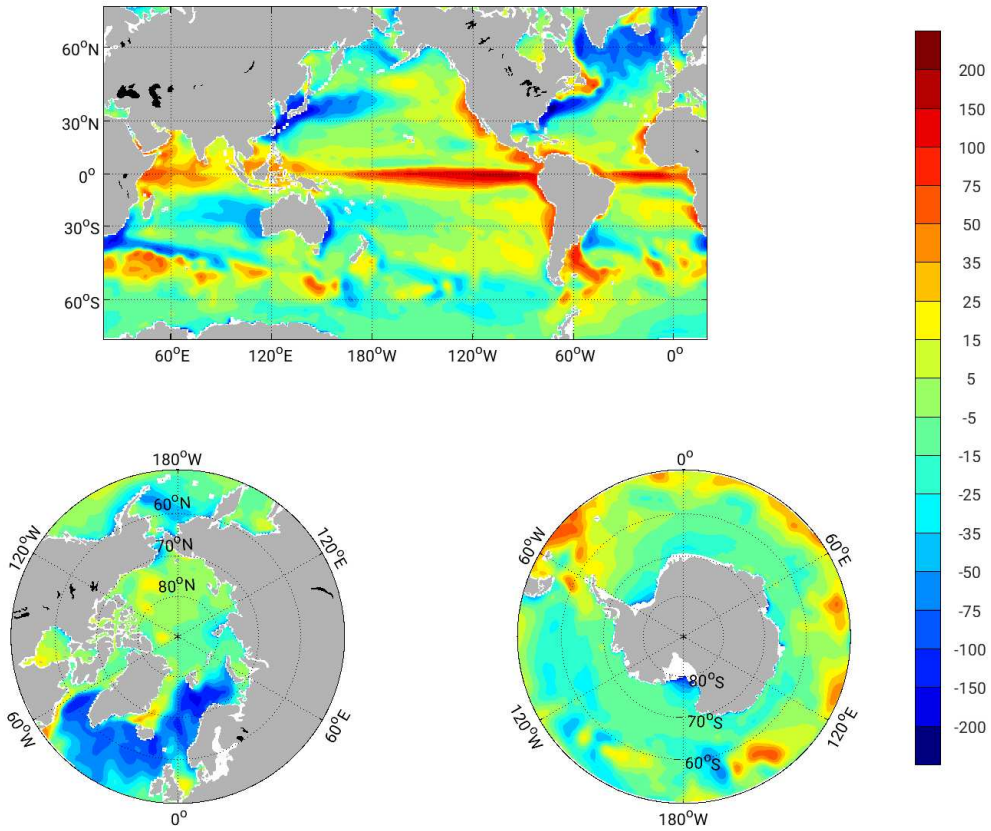

Figure: QNET to ocean+ice (W/m^2): 1992 thru 2015 Mean

air-sea heat flux

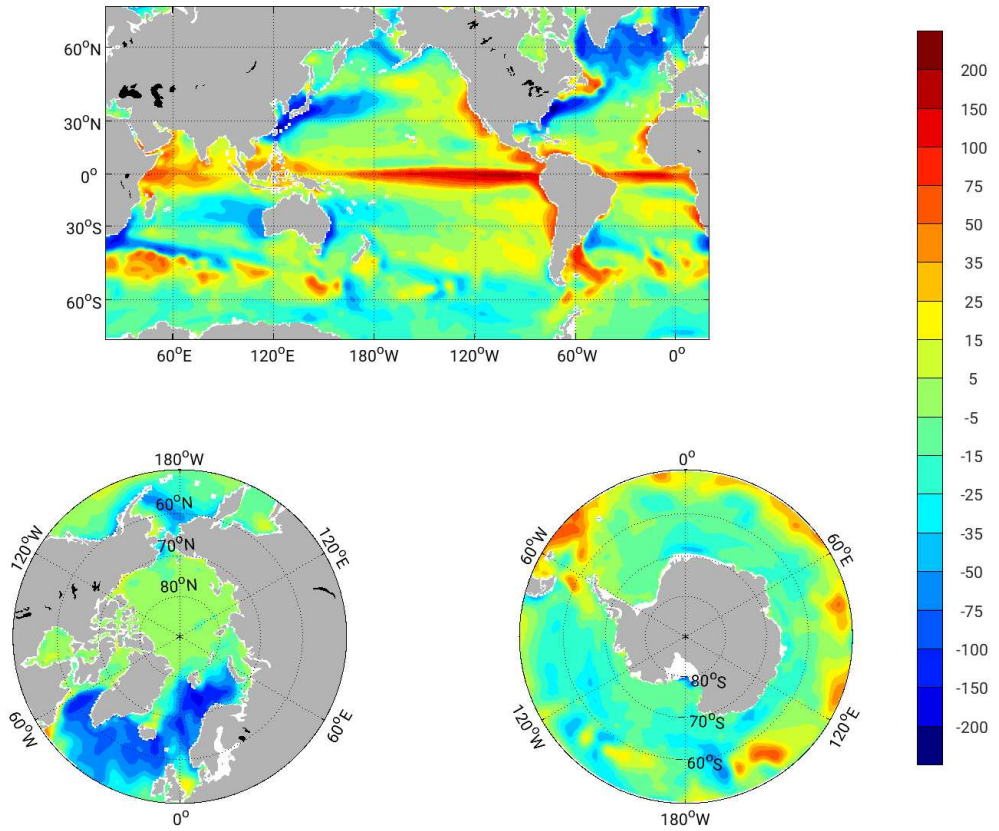

Figure: QNET to ocean (W/m^2): 1992 thru 2015 Mean

air-sea heat flux

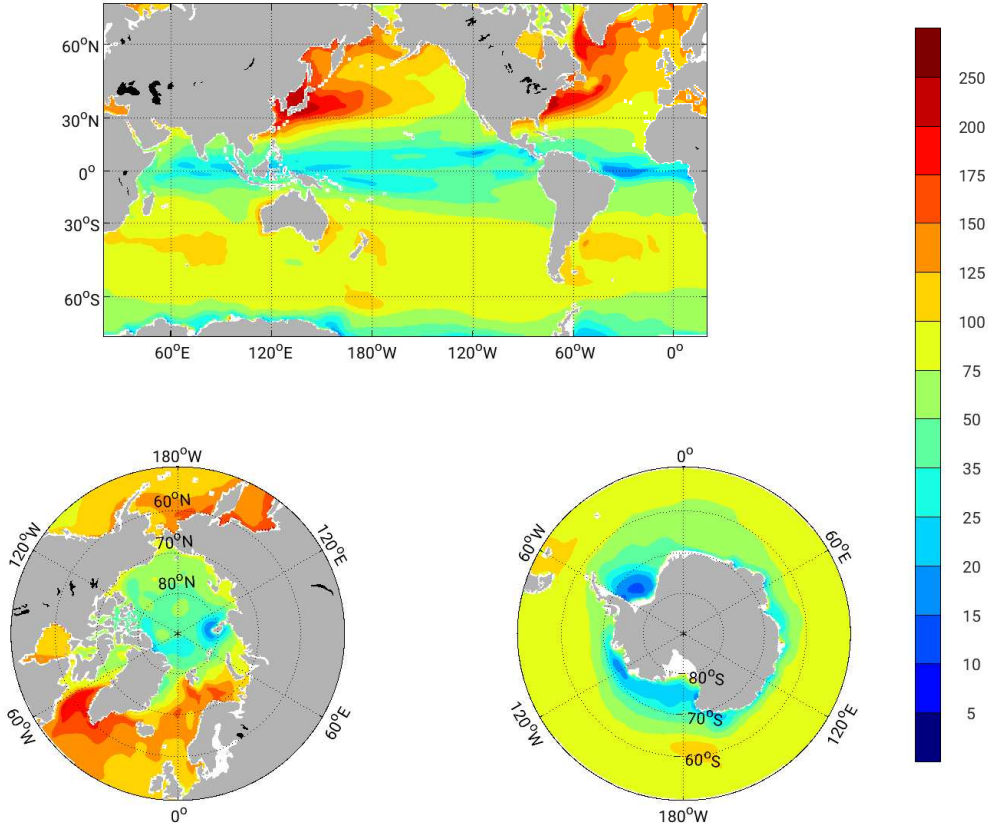

Figure: QNET to ocean+ice (W/m^2): Standard Deviation, 1992 thru 2015

air-sea heat flux

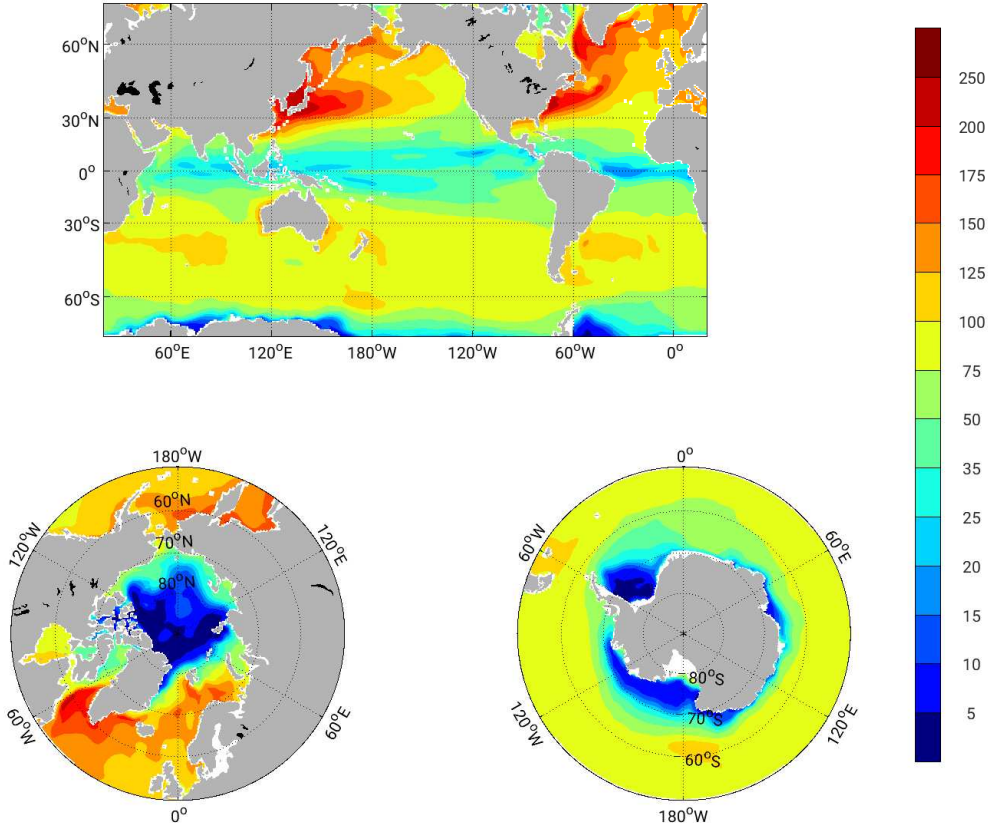

Figure: QNET to ocean (W/m^2): Standard Deviation, 1992 thru 2015

air-sea freshwater flux

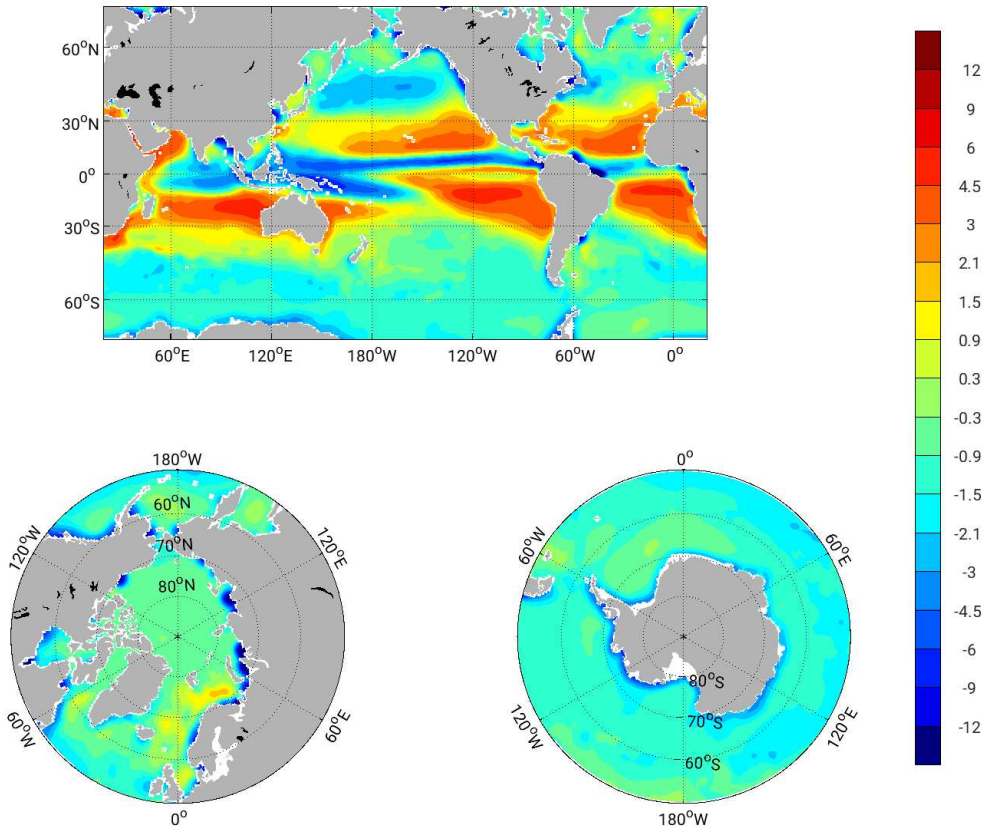

Figure: E-P-R from ocean+ice (mm/day): 1992 thru 2015 Mean

air-sea freshwater flux

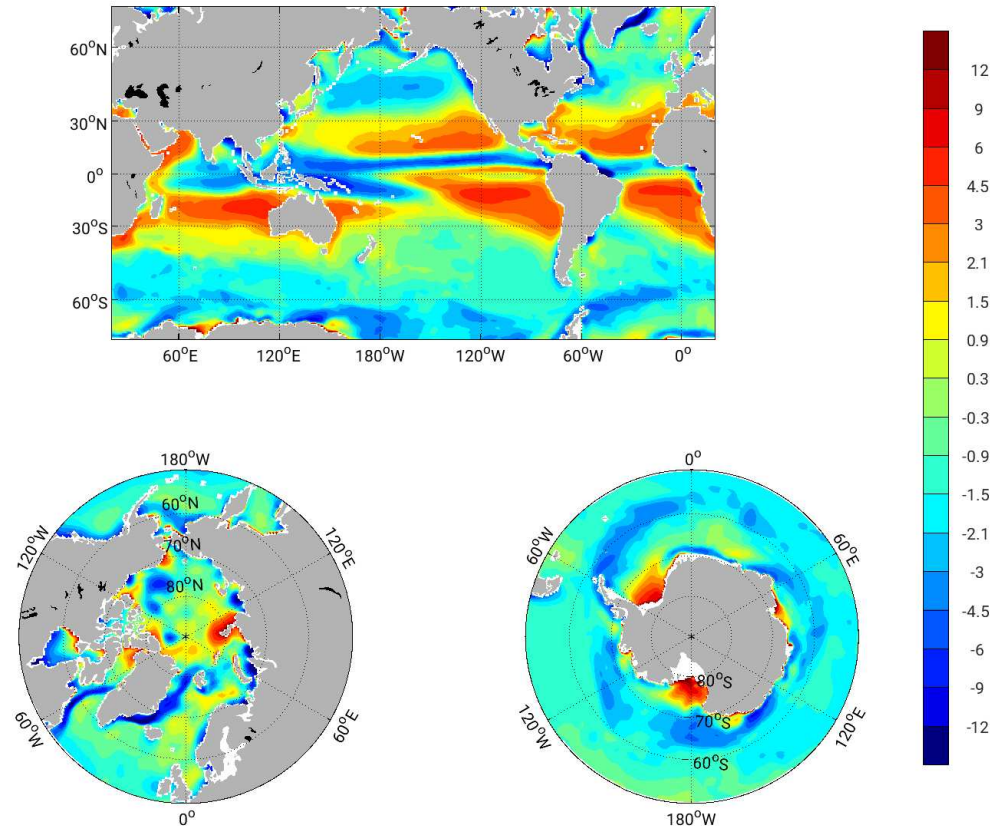

Figure: E-P-R from ocean (mm/day): 1992 thru 2015 Mean

air-sea freshwater flux

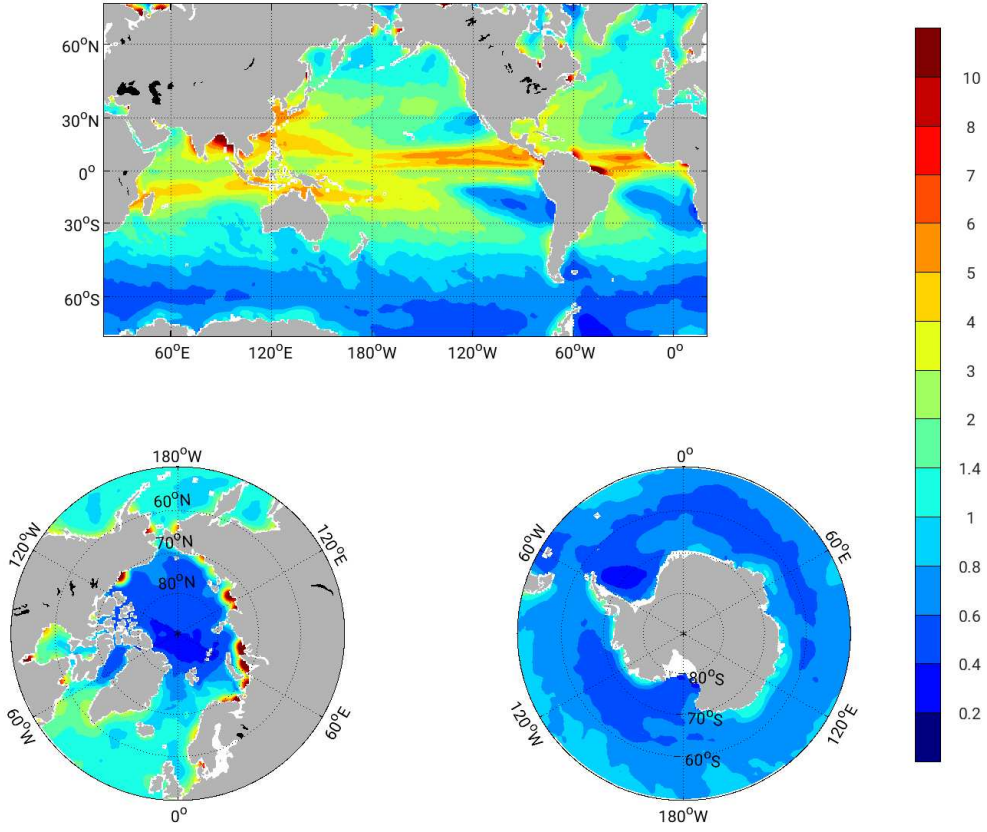

Figure: E-P-R to ocean+ice (mm/day): Standard Deviation, 1992 thru 2015

air-sea freshwater flux

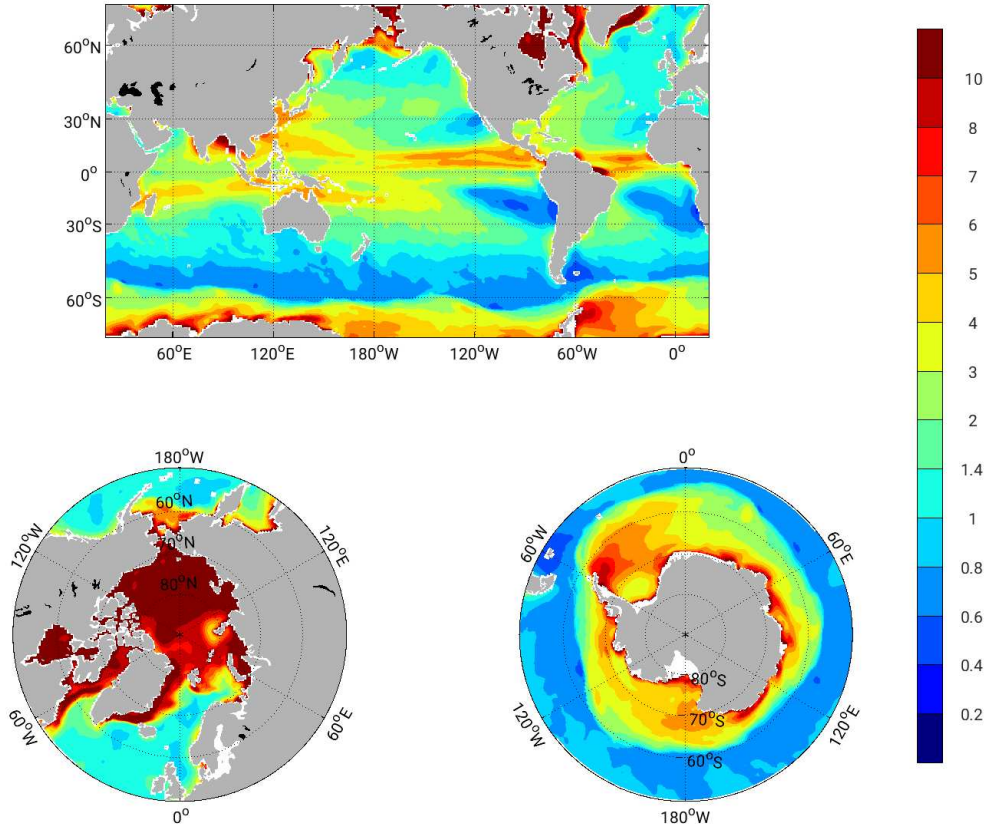

Figure: E-P-R to ocean (mm/day): Standard Deviation, 1992 thru 2015

surface wind stress

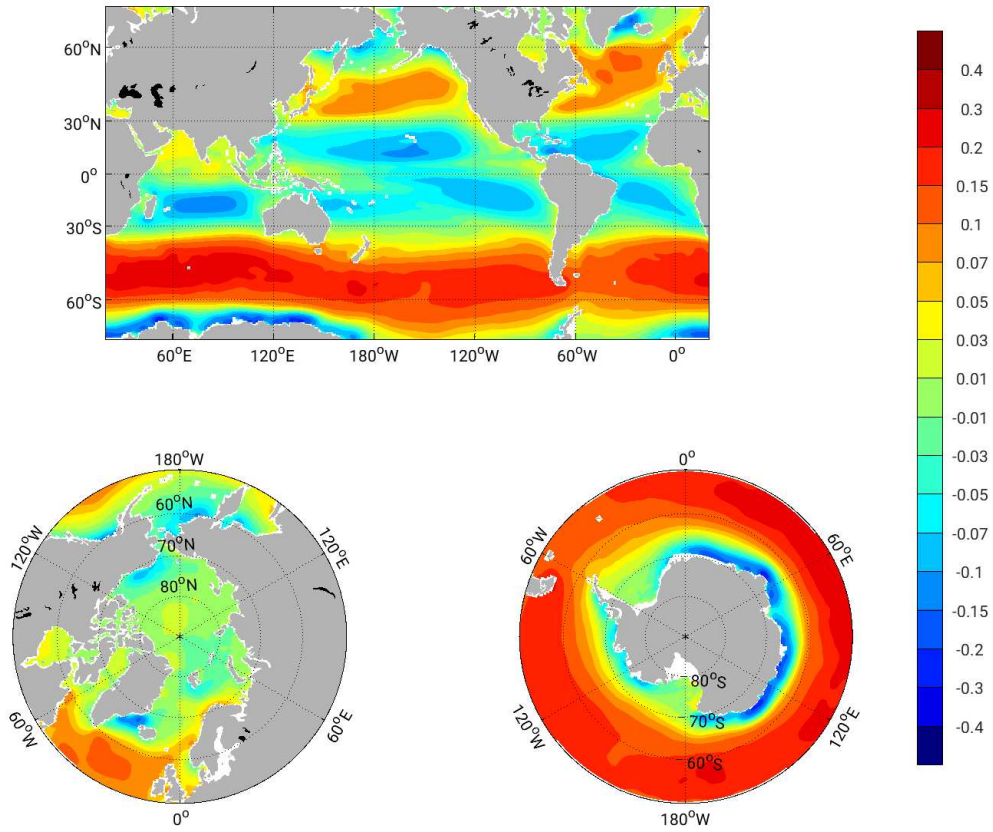

Figure: Zonal Wind Stress (N/m^2): 1992 thru 2015 Mean

surface wind stress

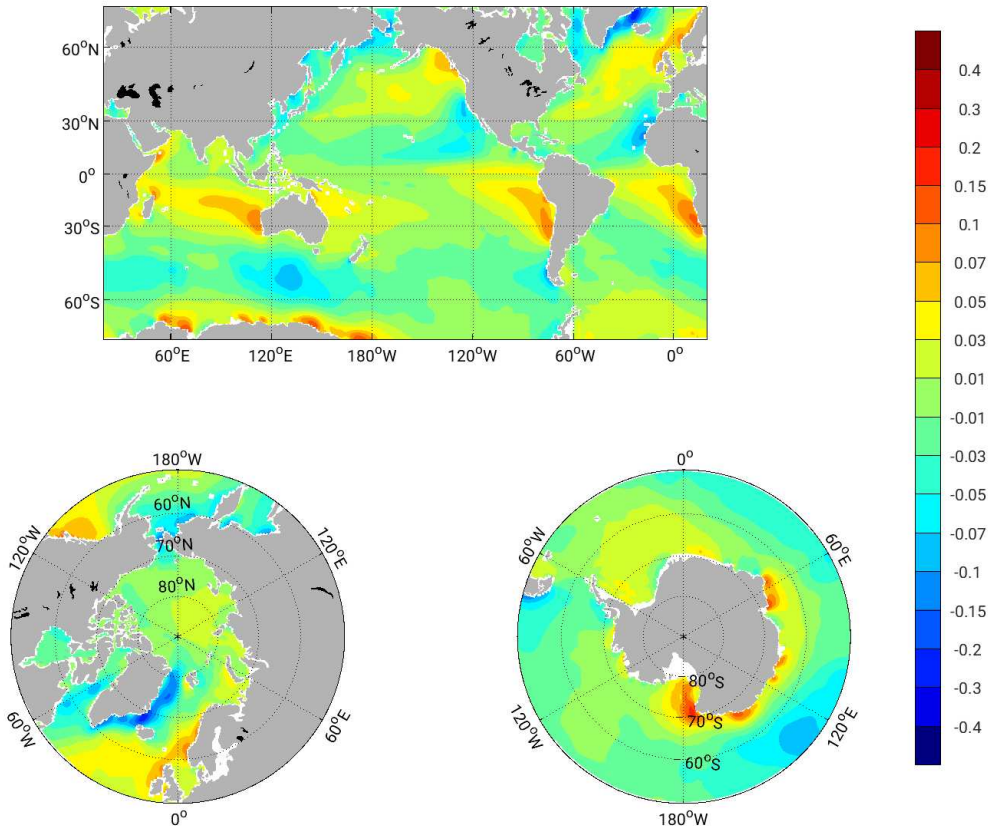

Figure: Meridional Wind Stress (N/m^2): 1992 thru 2015 Mean

surface wind stress

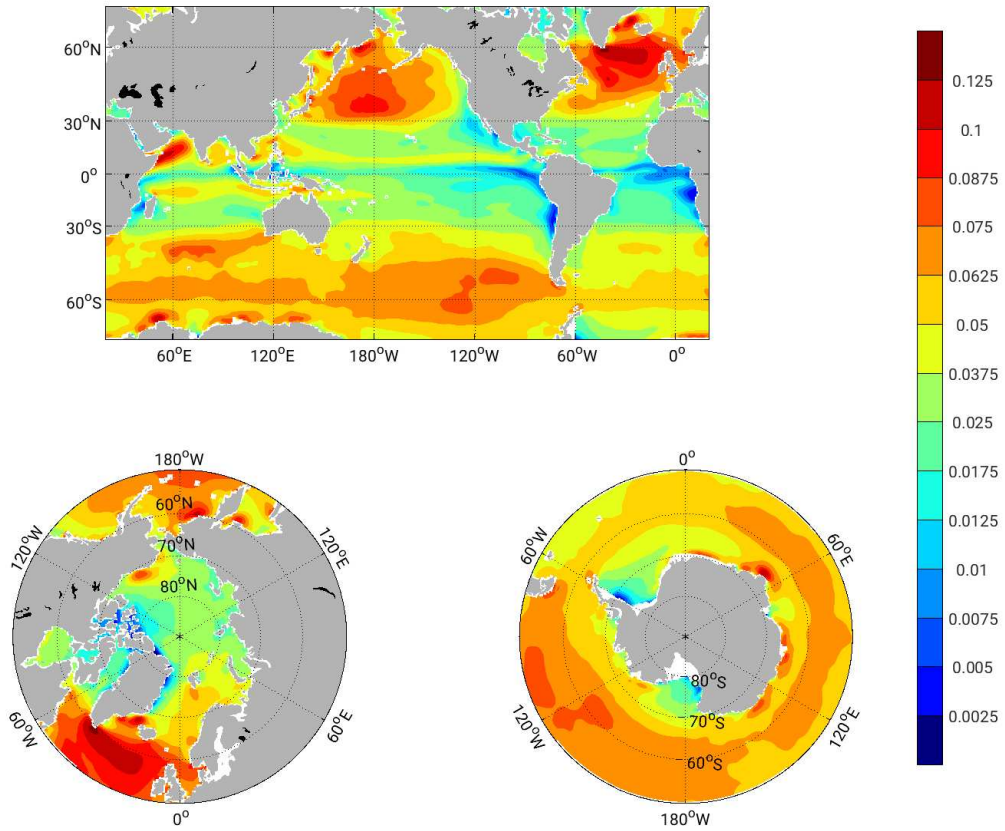

Figure: tauZ (N/m^2): Standard Deviation, 1992 thru 2015

surface wind stress

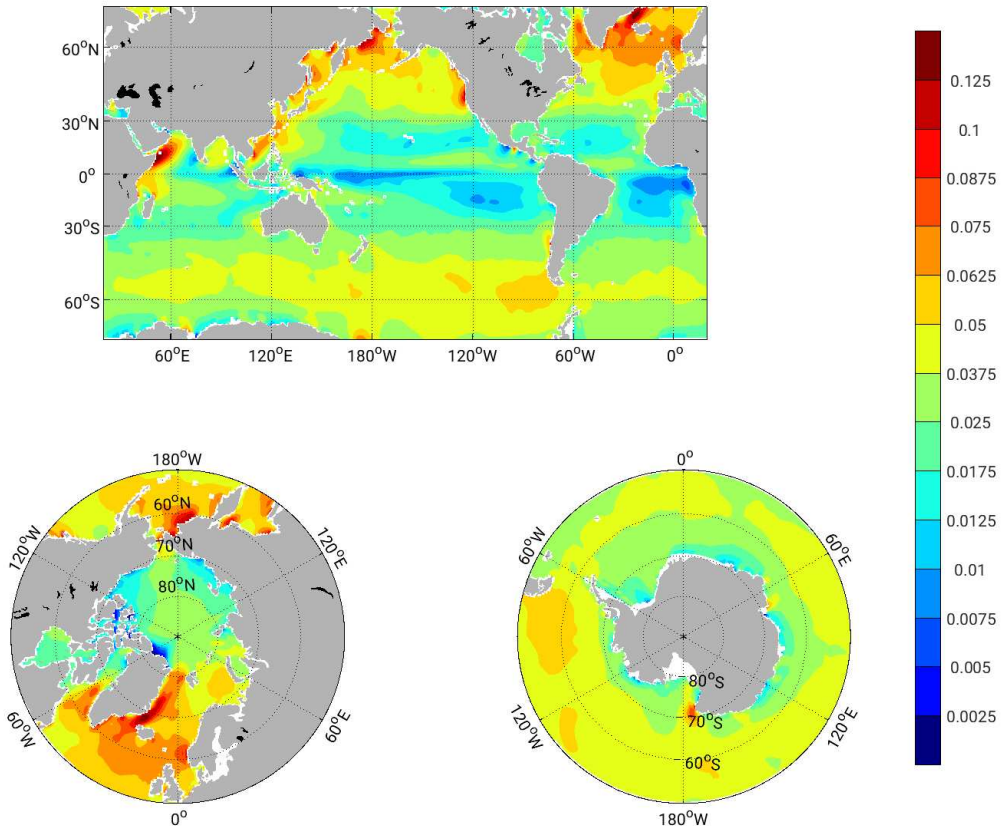

Figure: tauM (N/m^2): Standard Deviation, 1992 thru 2015

zonal mean tendencies

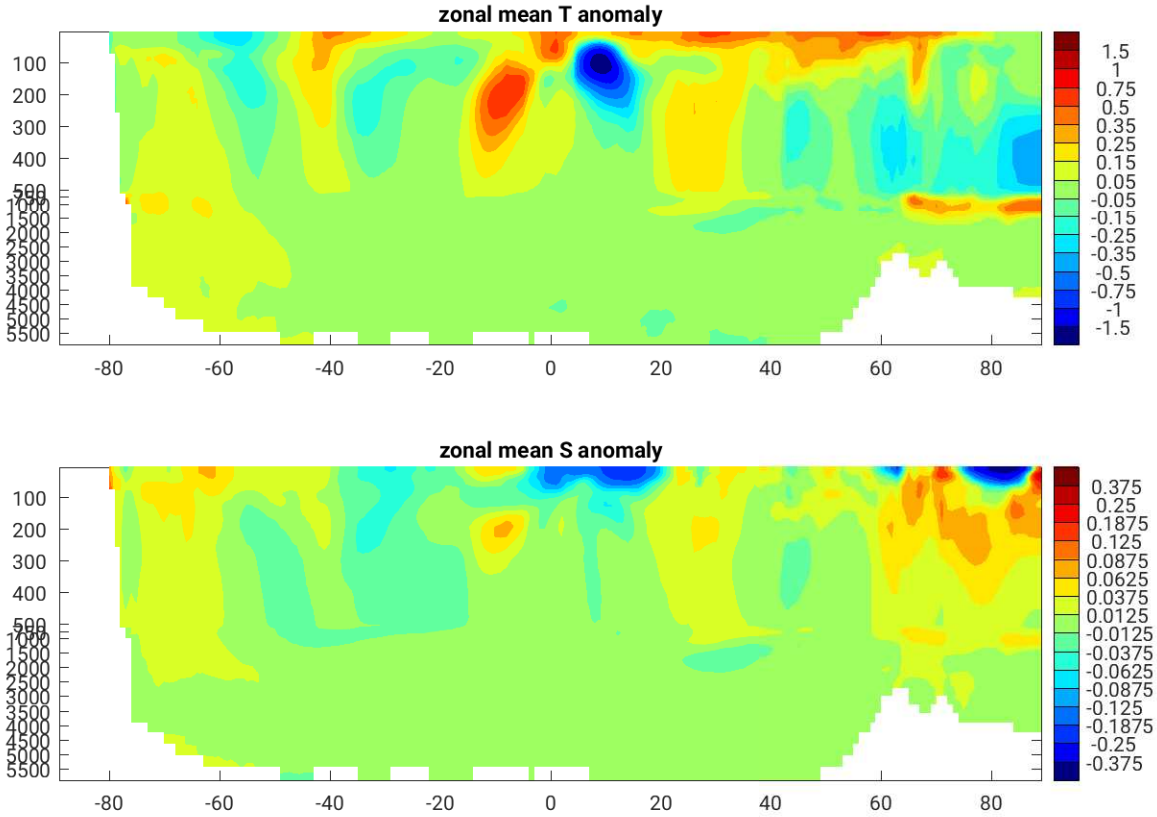

Figure: Last Year (2015) Minus First Year (1992) – Zonal Mean Temperature (C; top) and Salinity (psu; bottom)

equatorial sections

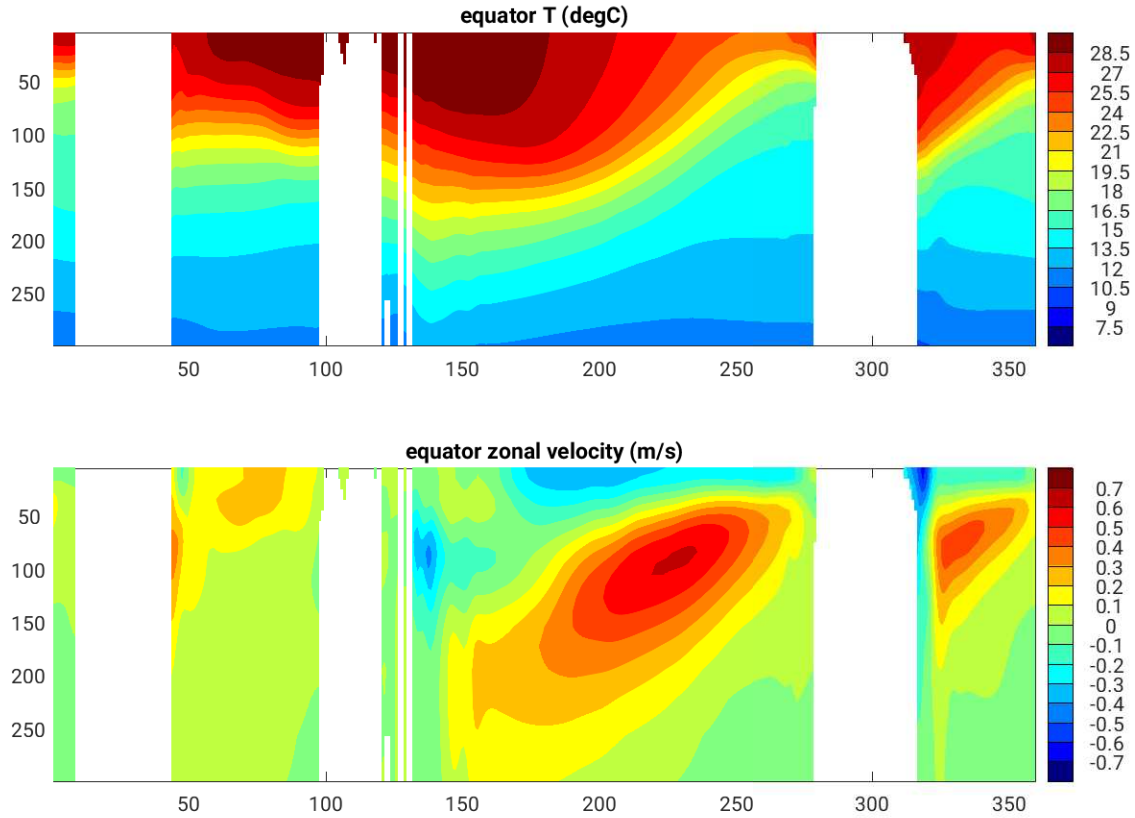

Figure: Equator Temperature (C;top) and Zonal Velocity (m/s;bottom): 1992 thru 2015 Mean

global mean properties

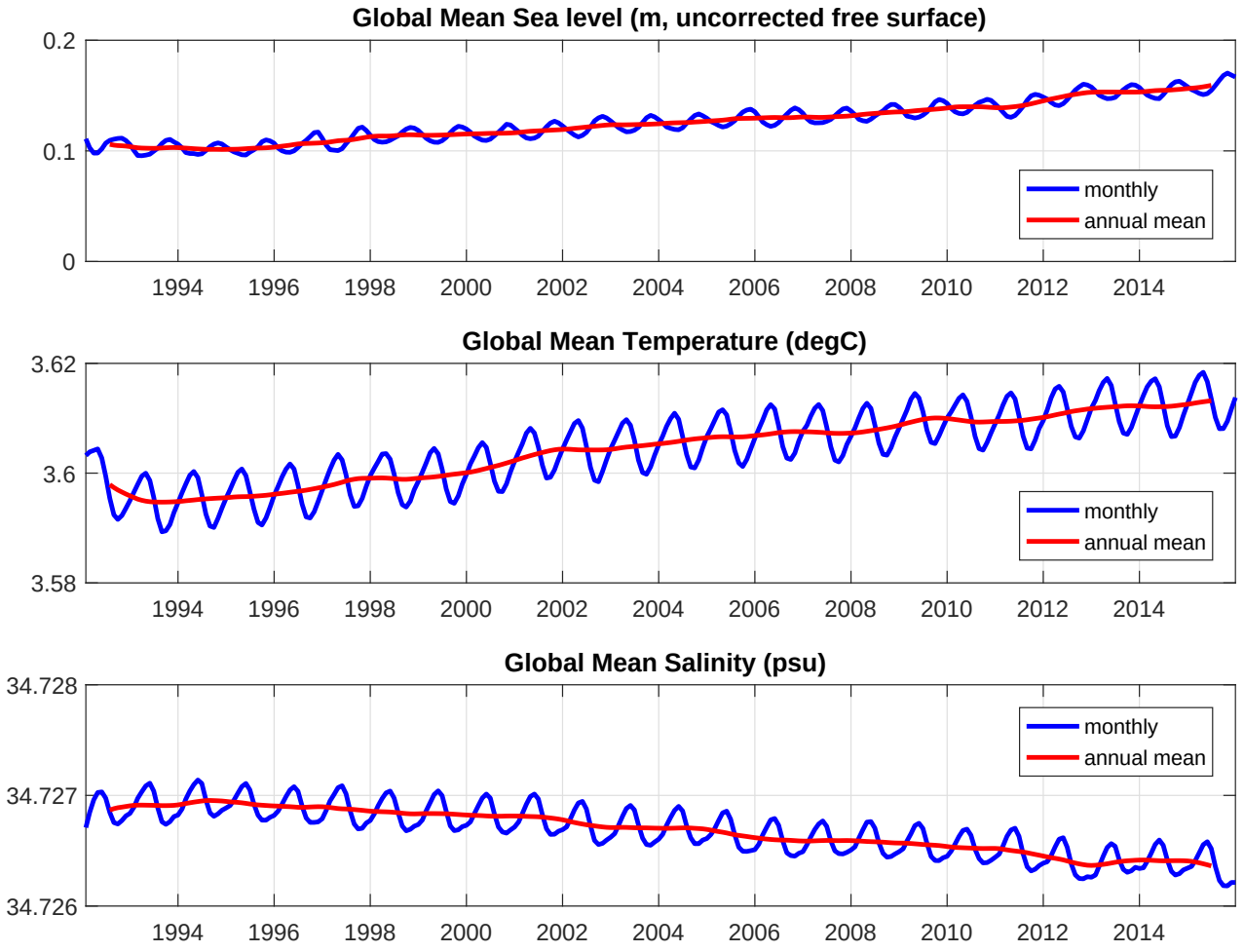

Figure: Global Mean T (C; top) and S (psu; bottom)

global mean properties

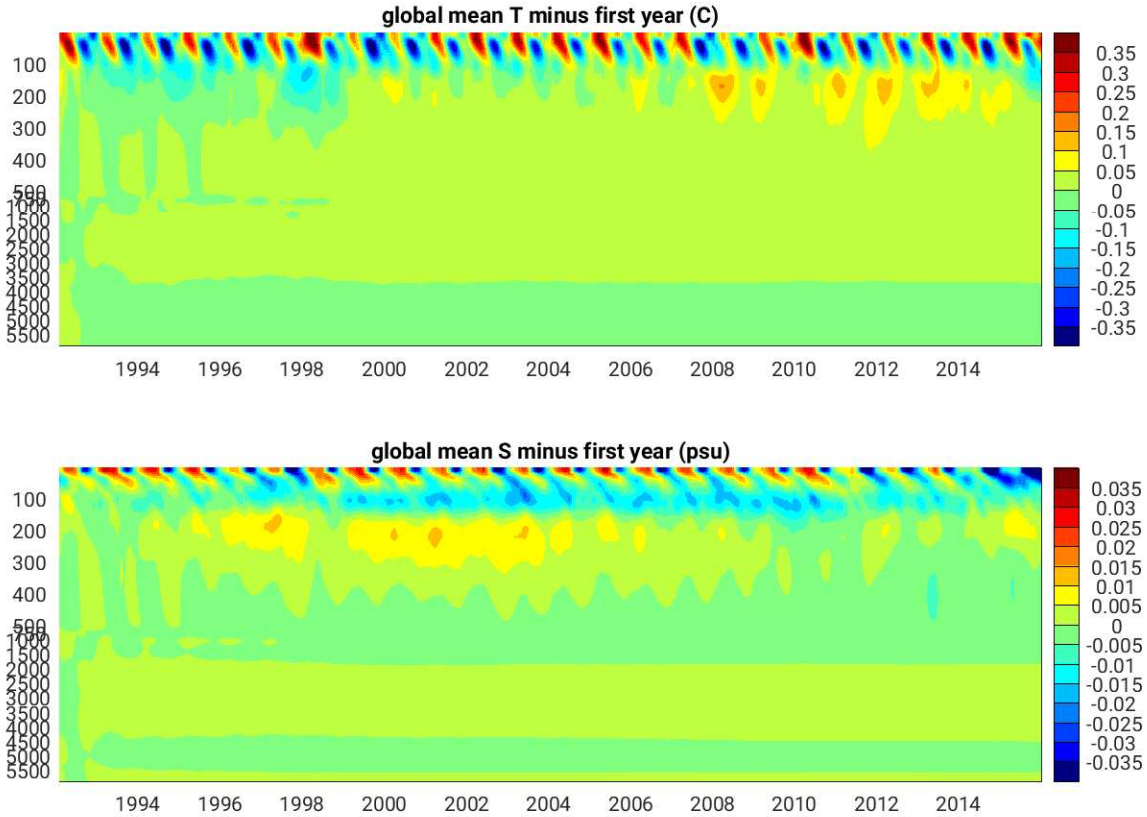

Figure: Global Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year

zonal mean properties

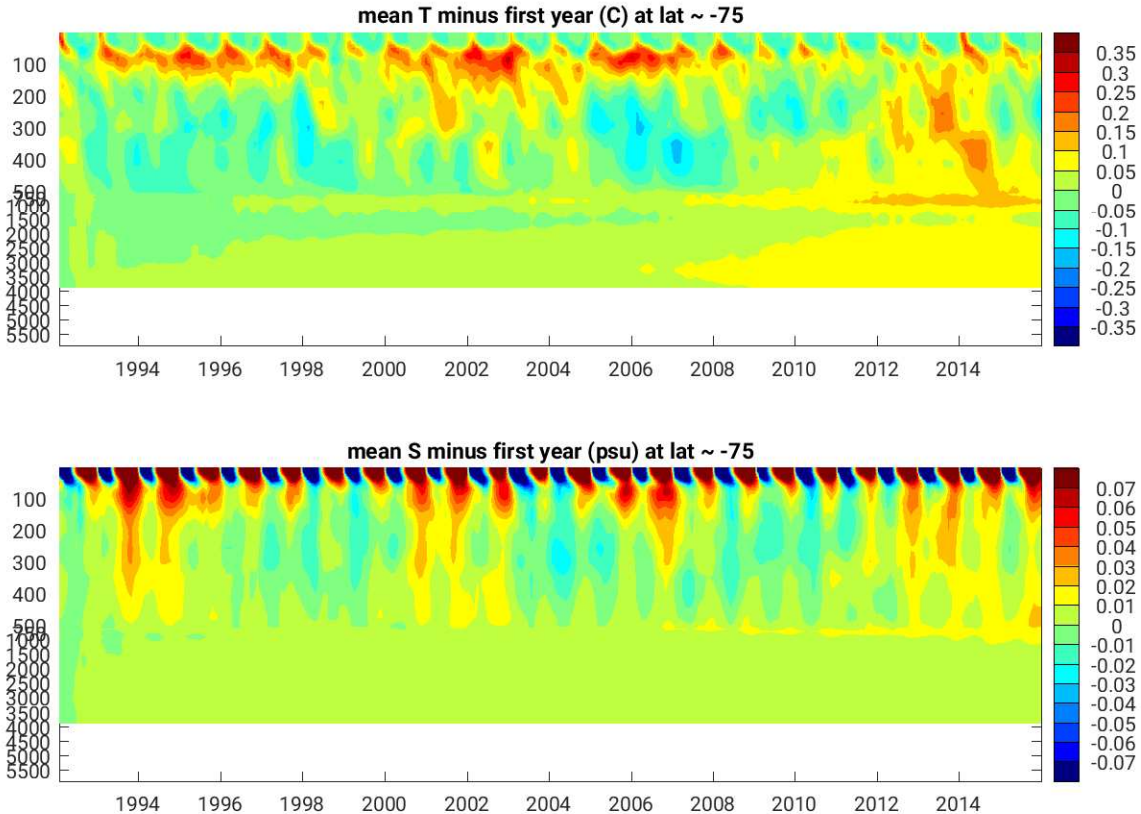

Figure: Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year at lat $\approx$ -75

zonal mean properties

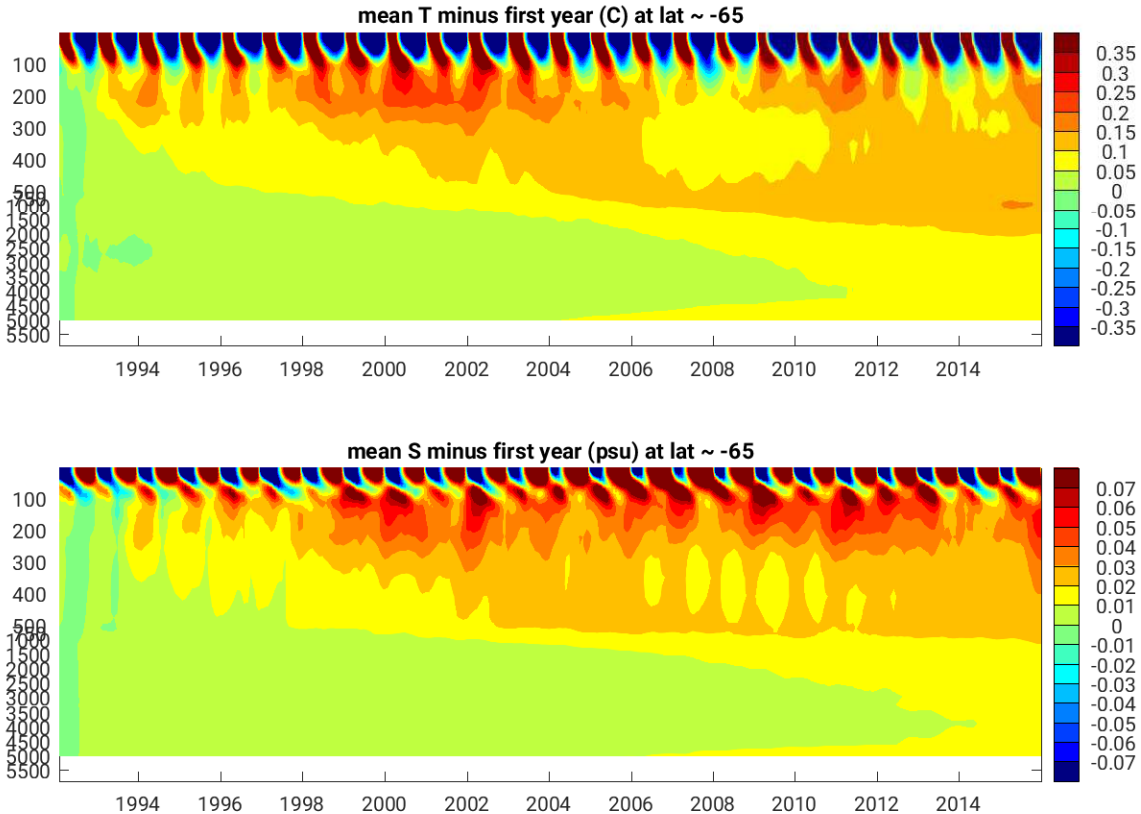

Figure: Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year at lat $\approx$ -65

zonal mean properties

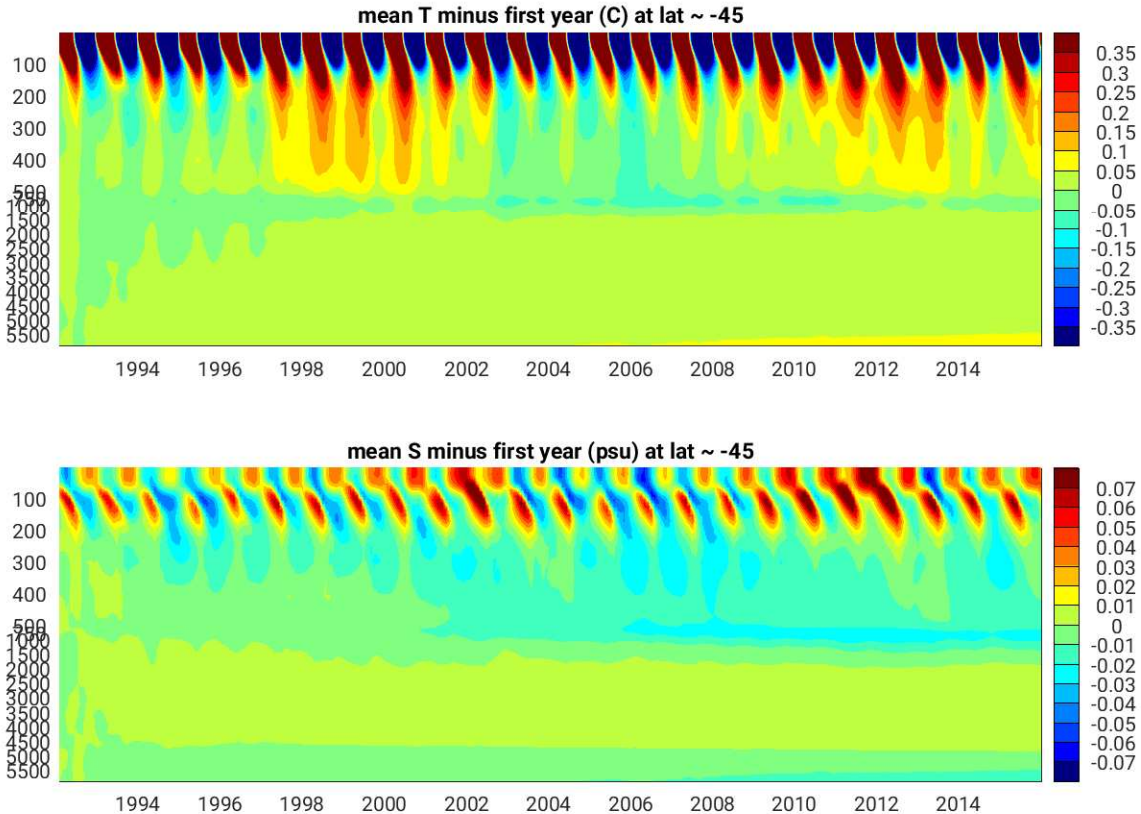

Figure: Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year at lat $\approx$ -45

zonal mean properties

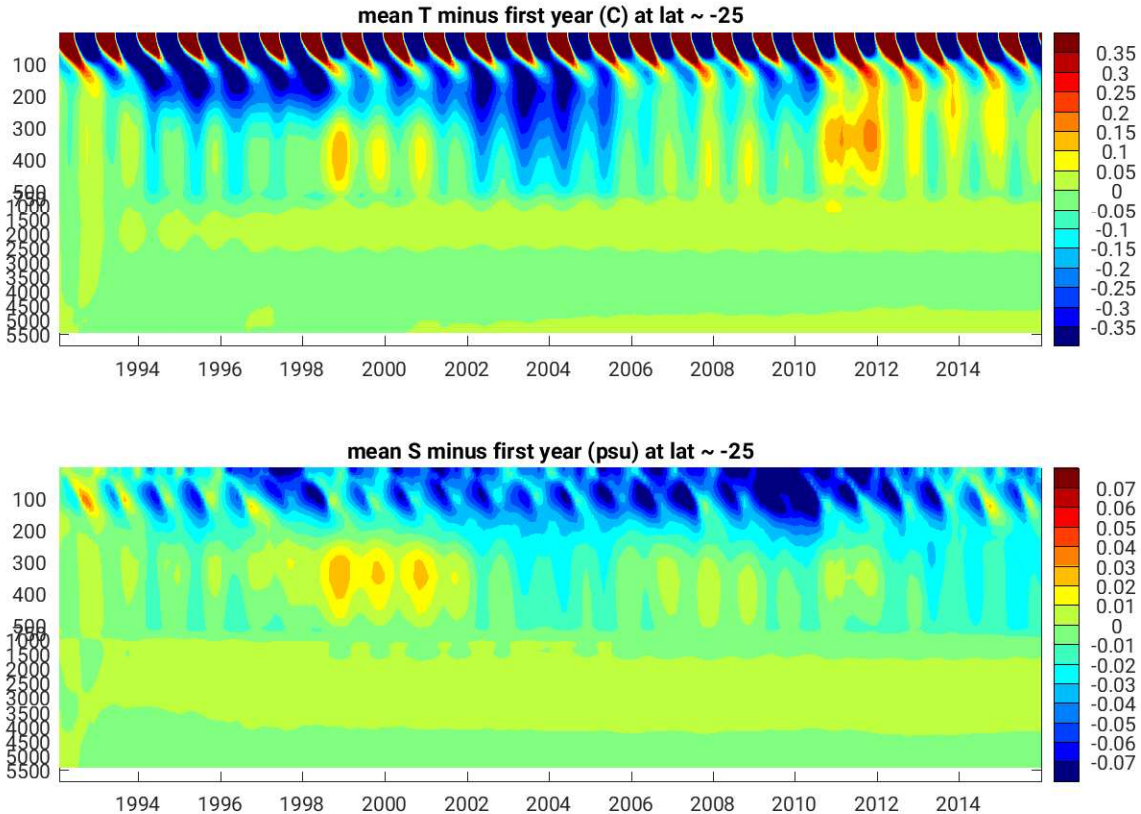

Figure: Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year at lat $\approx$ -25

zonal mean properties

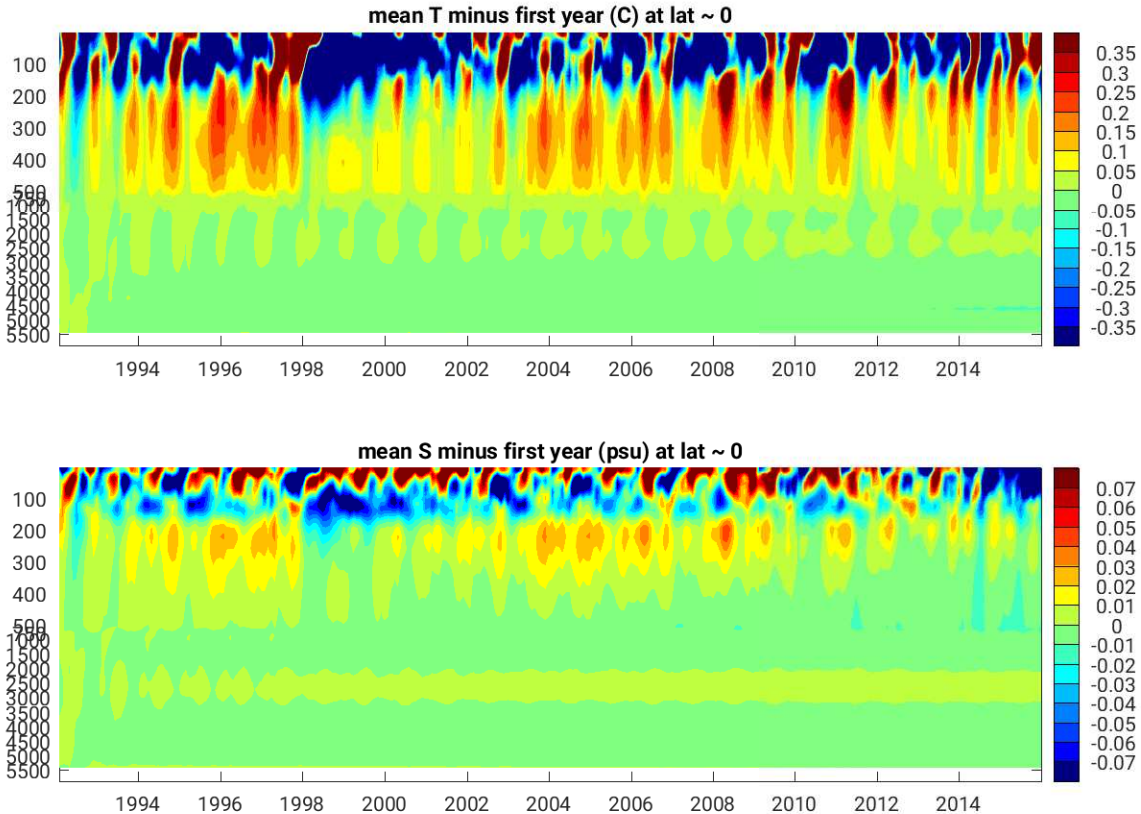

Figure: Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year at lat ≈ 0

zonal mean properties

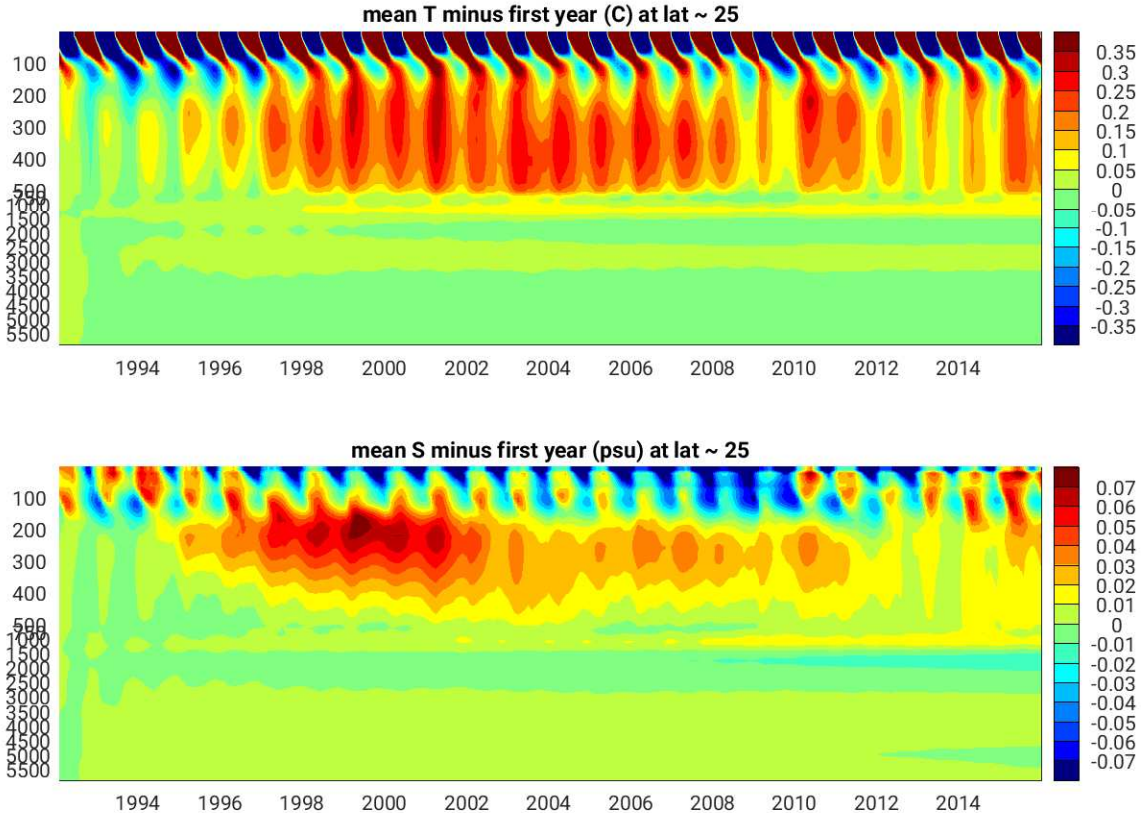

Figure: Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year at lat $\approx$ 25

zonal mean properties

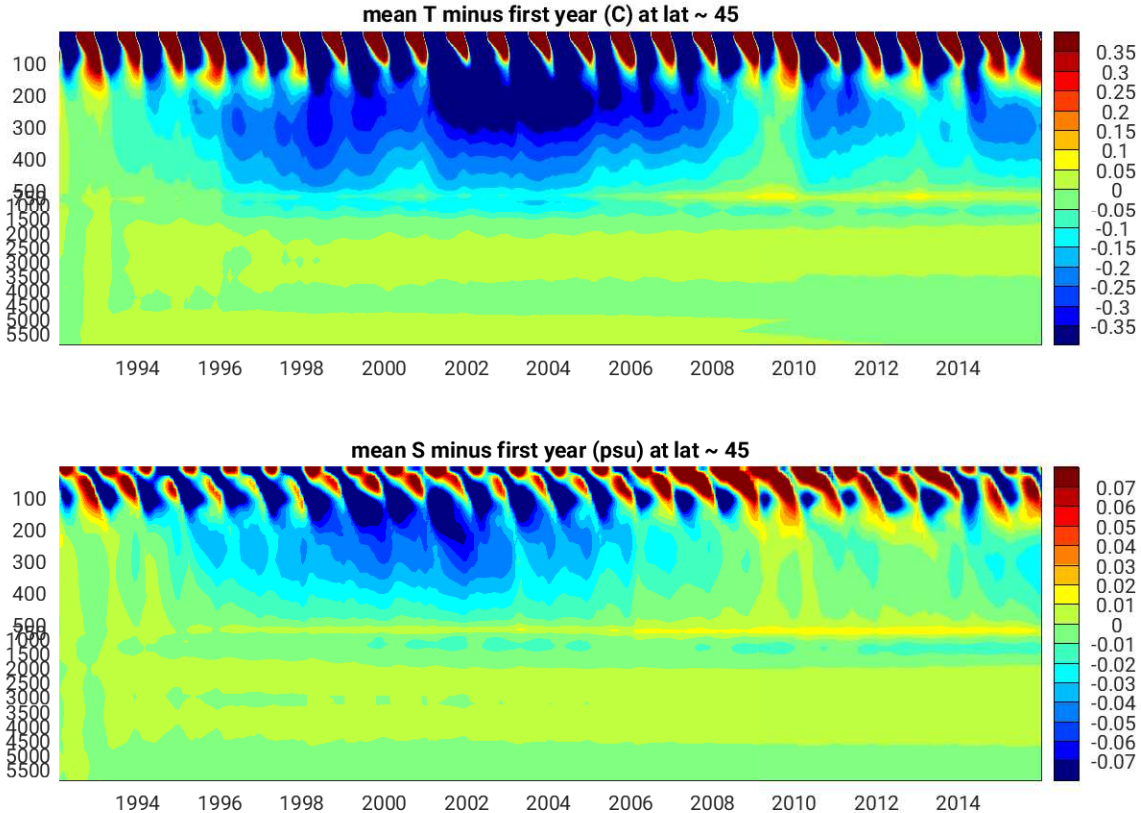

Figure: Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year at lat $\approx$ 45

zonal mean properties

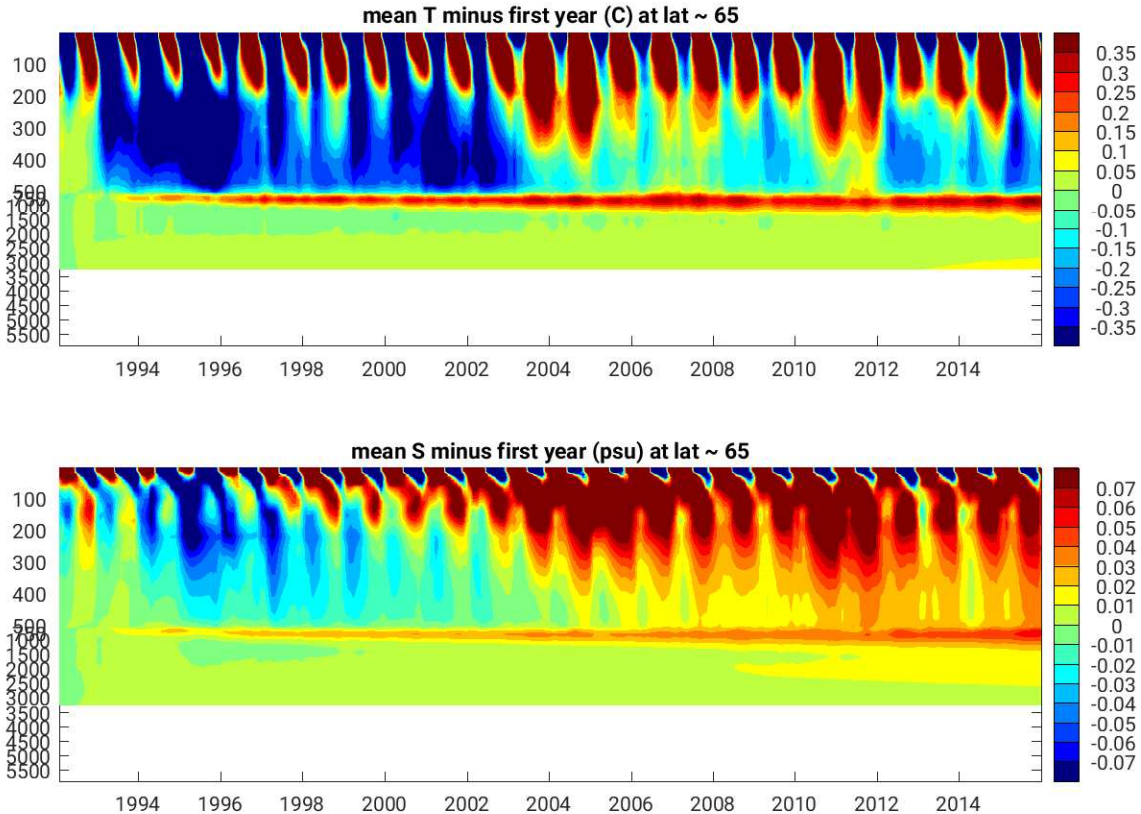

Figure: Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year at lat $\approx$ 65

zonal mean properties

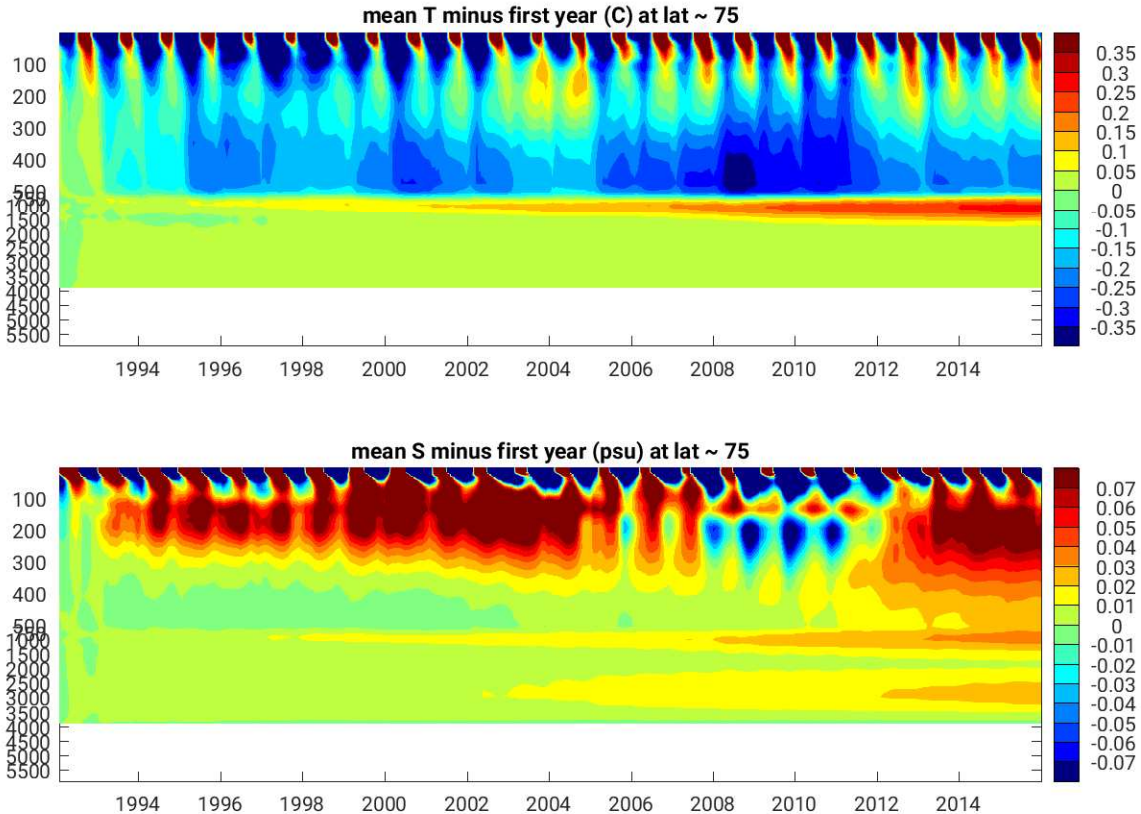

Figure: Mean Temperature (C; top) and Salinity (psu; bottom) Minus First Year at lat $\approx$ 75

zonal mean properties (surface)

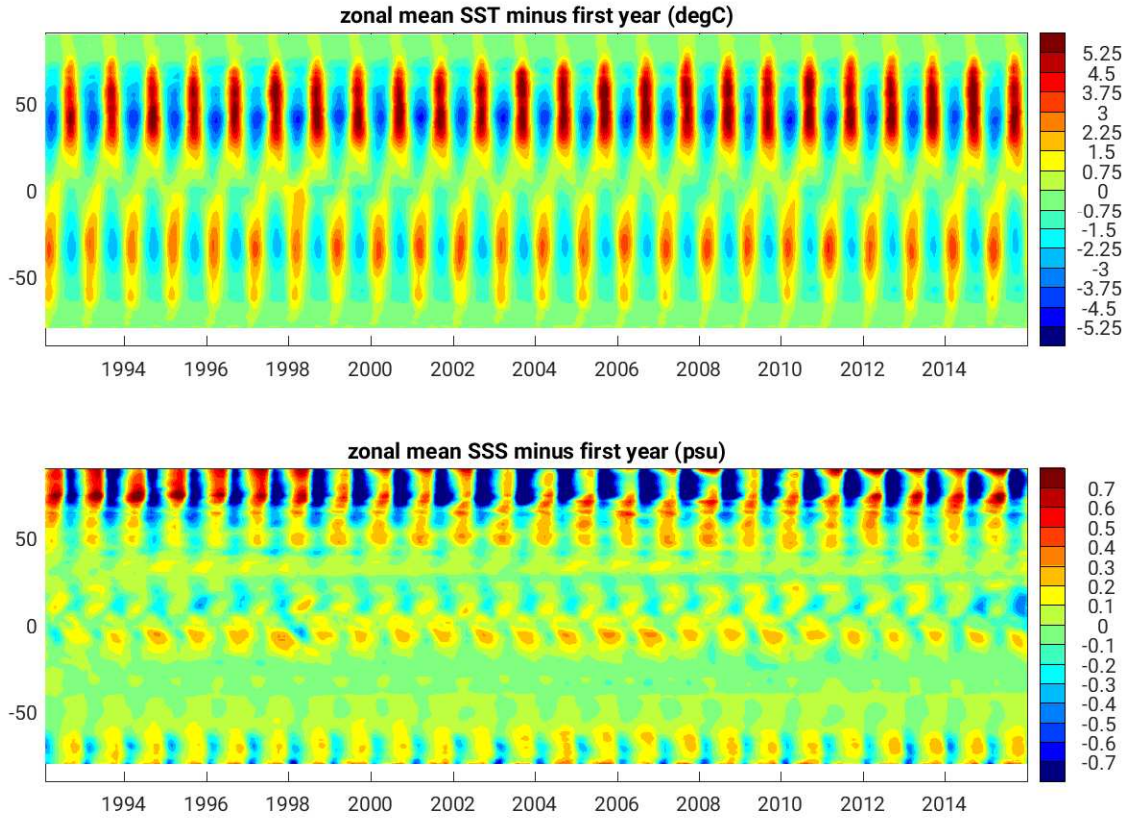

Figure: Zonal Mean Temperature (C; top) and Salinity (psu; bottom) minus first year (psu) at 5m depth

zonal mean properties (surface)

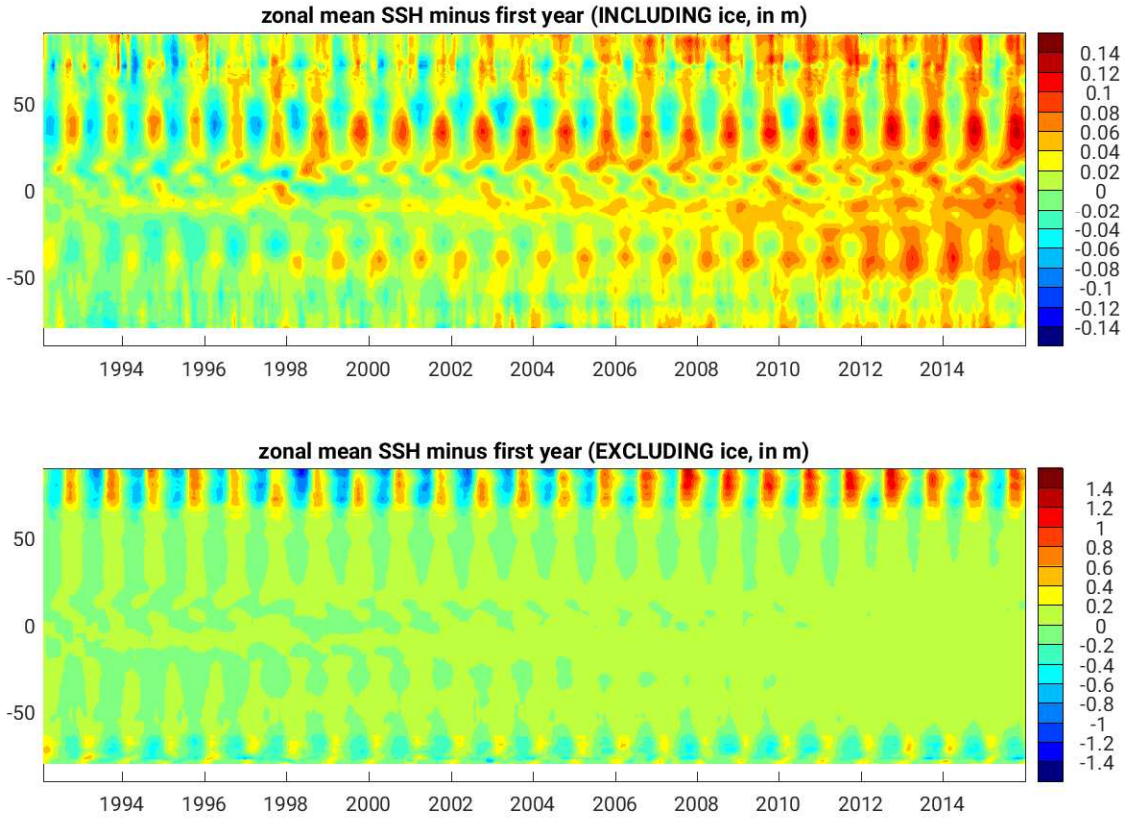

Figure: Zonal Mean SSH (m, uncorrected free surface) Minus First Year, Including Ice (top) and Below Ice (bottom)

zonal mean properties (surface)

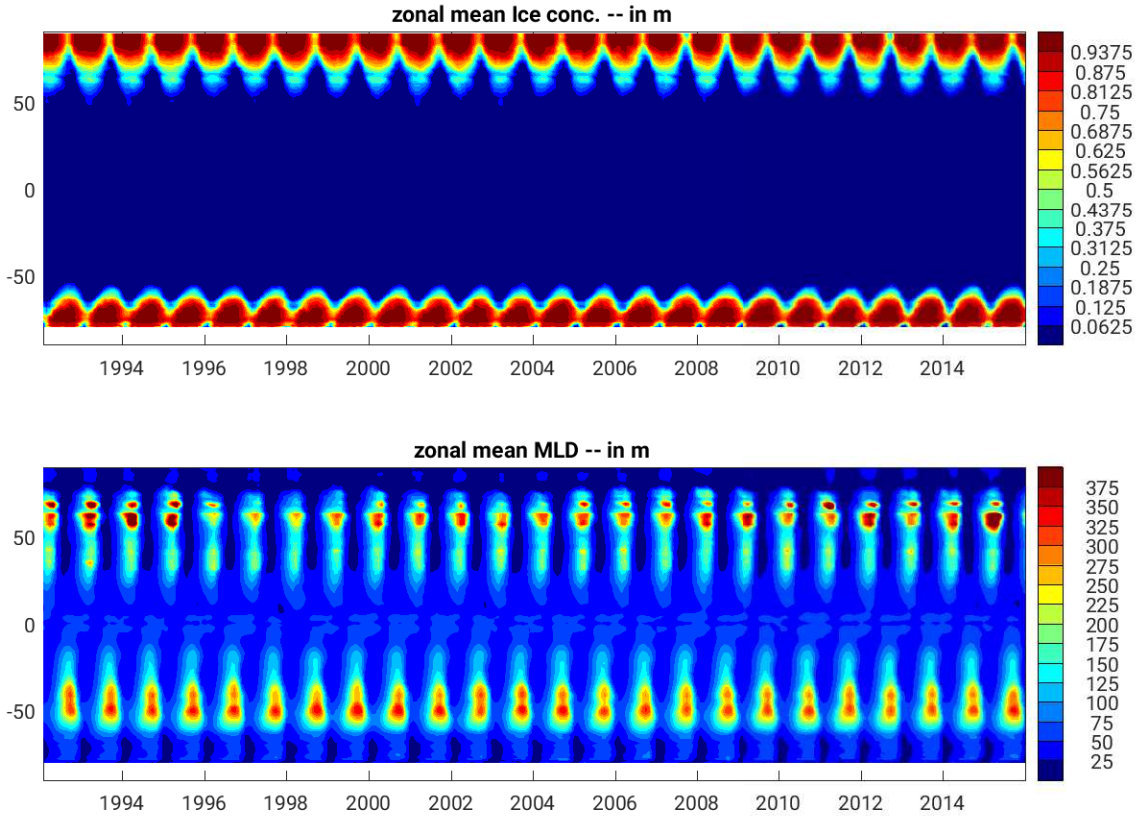

Figure: Zonal Mean Ice Concentration (no units) and Mixed Layer Depth (m)

seaice time series

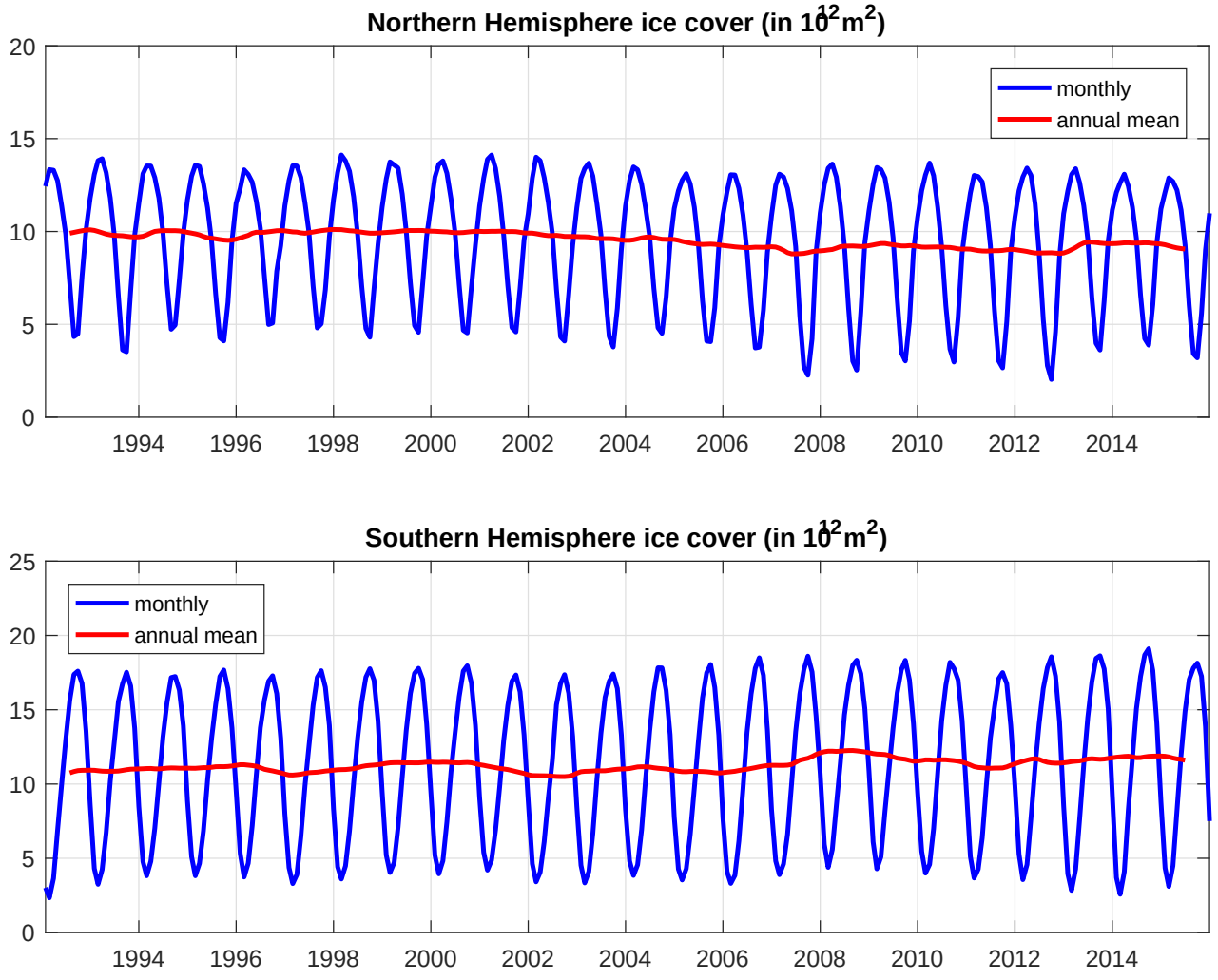

Figure: Sea Ice Cover (in $10^{12}m^2$) in Northern (top) and Southern (bottom) Hemisphere

seaice time series

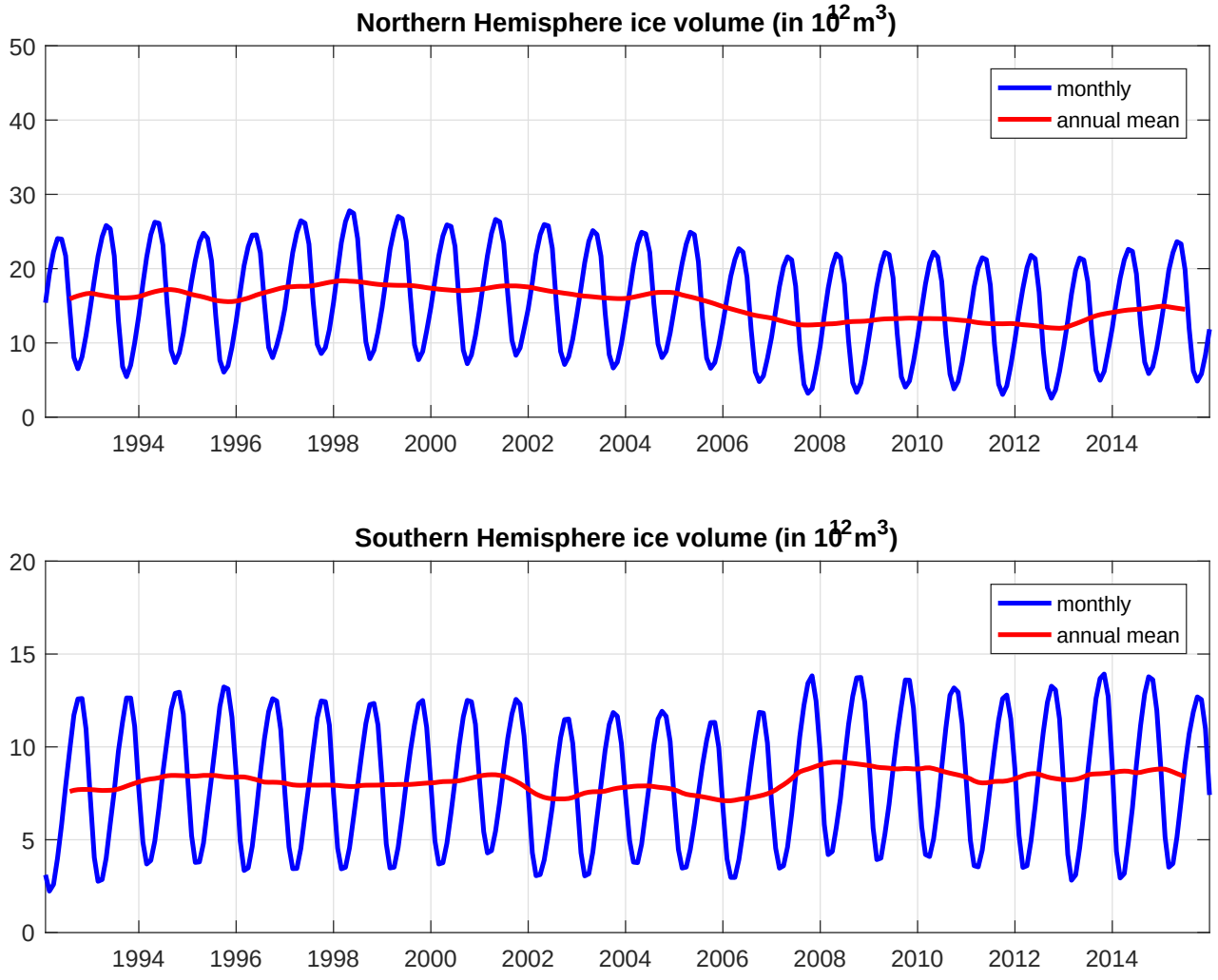

Figure: Sea Ice Volume (in $10^{12}m^3$) in Northern (top) and Southern (bottom) Hemisphere

seaice time series

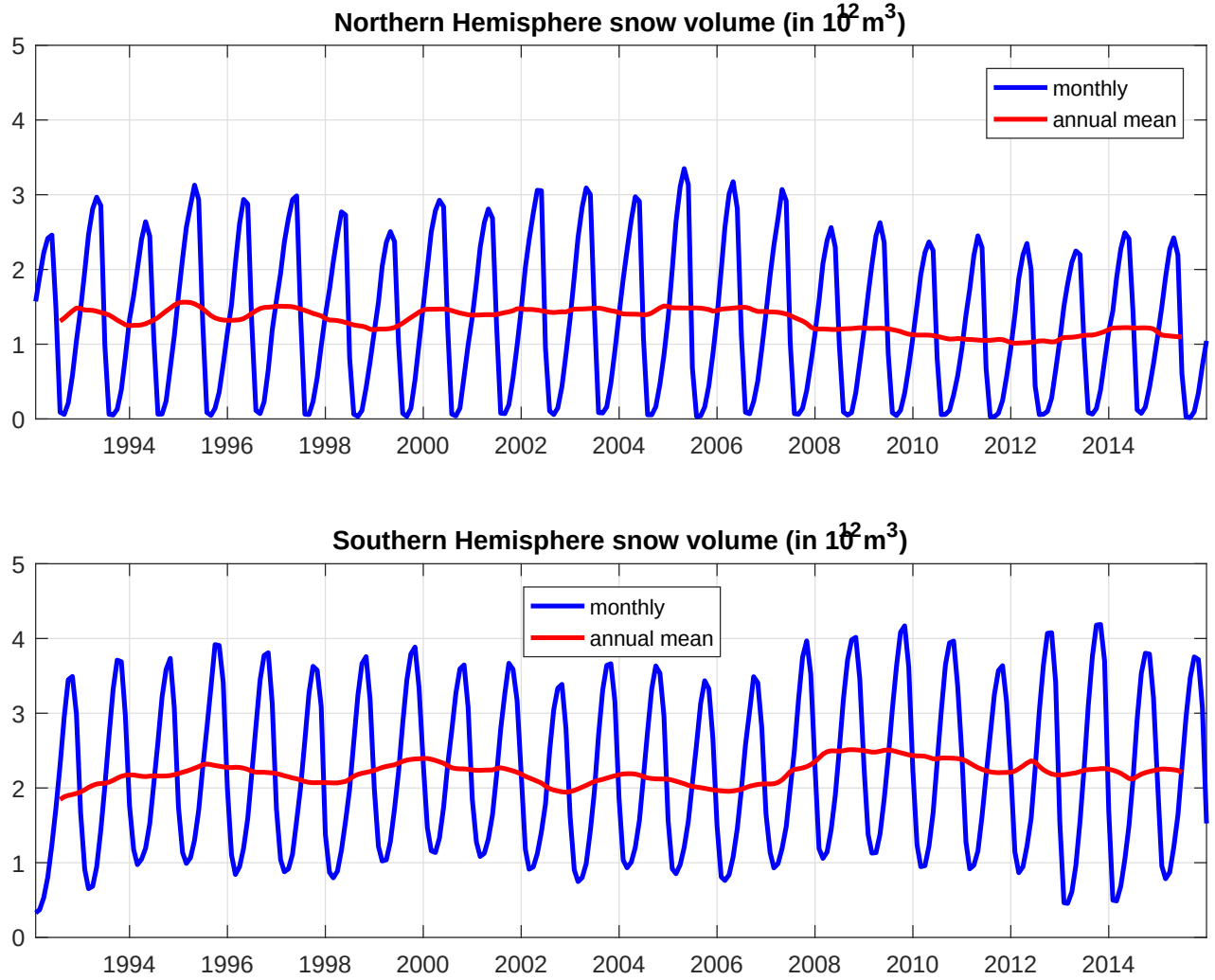

Figure: Snow Volume (in $10^{12} m^3$) in Northern (top) and Southern (bottom) Hemisphere

seaice time series

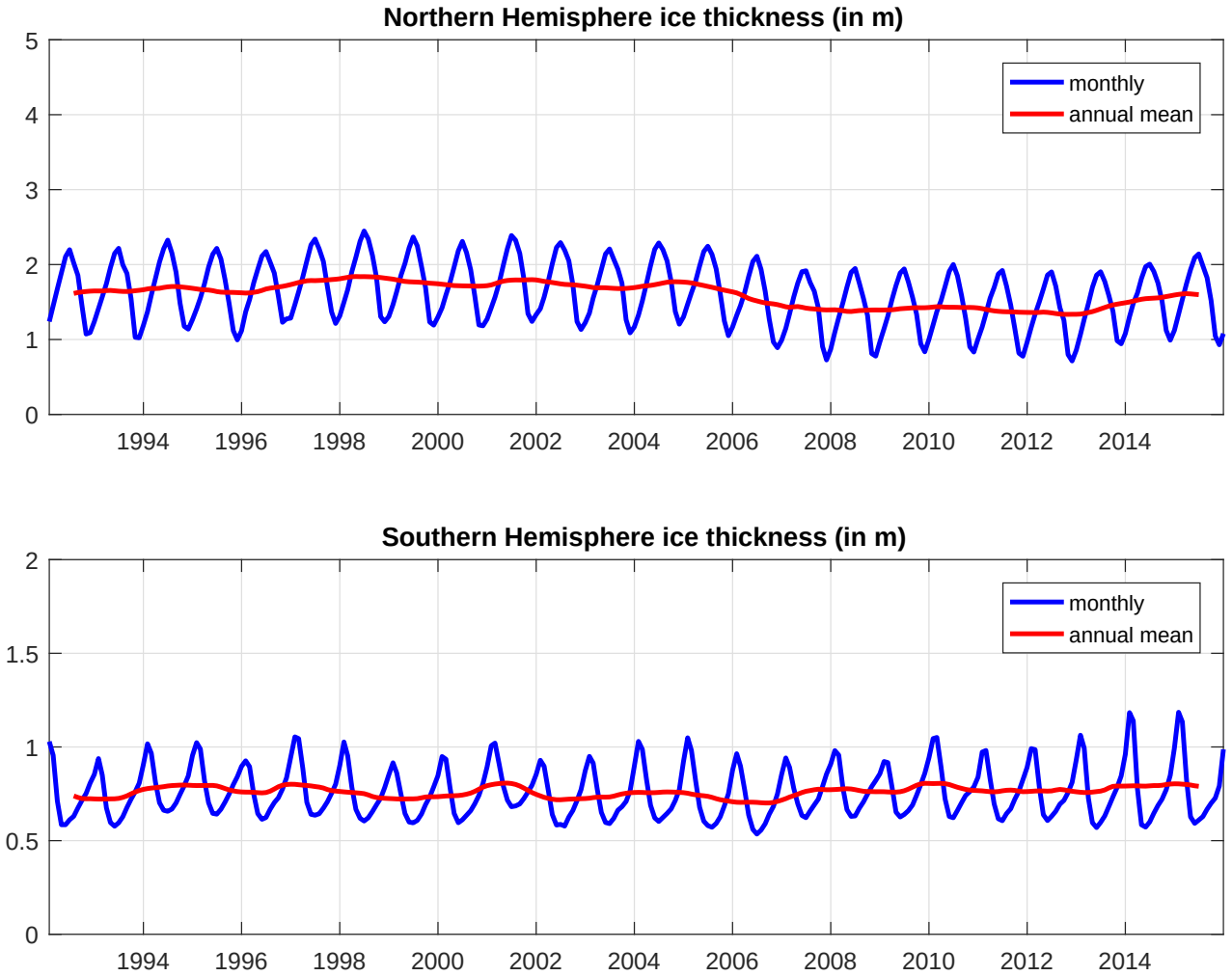

Figure: Sea Ice Thickness (in m) in Northern (top) and Southern (bottom) Hemisphere

seaice time series

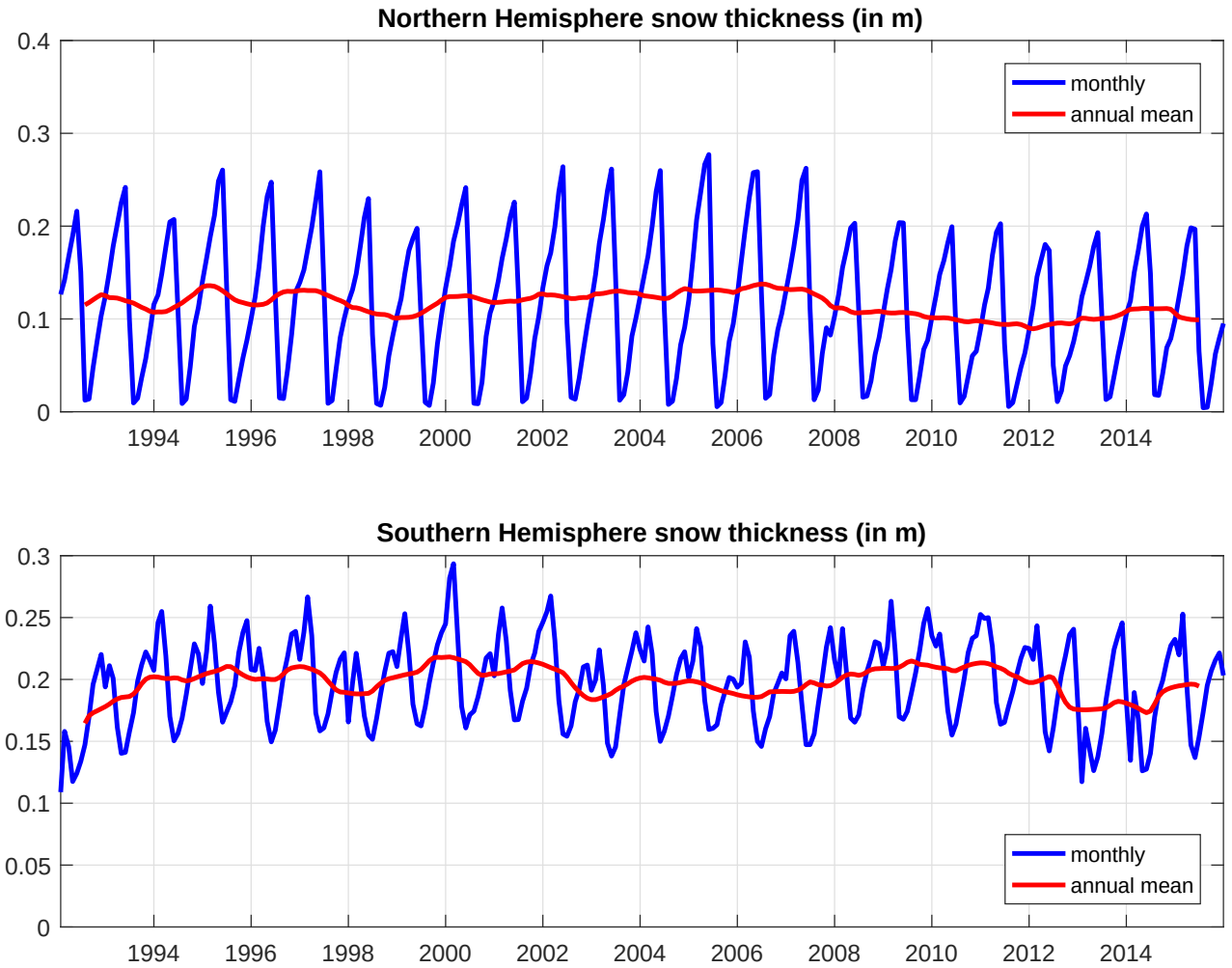

Figure: Snow Thickness (in m) in Northern (top) and Southern (bottom) Hemisphere

budgets : volume, heat and salt (top to bottom)

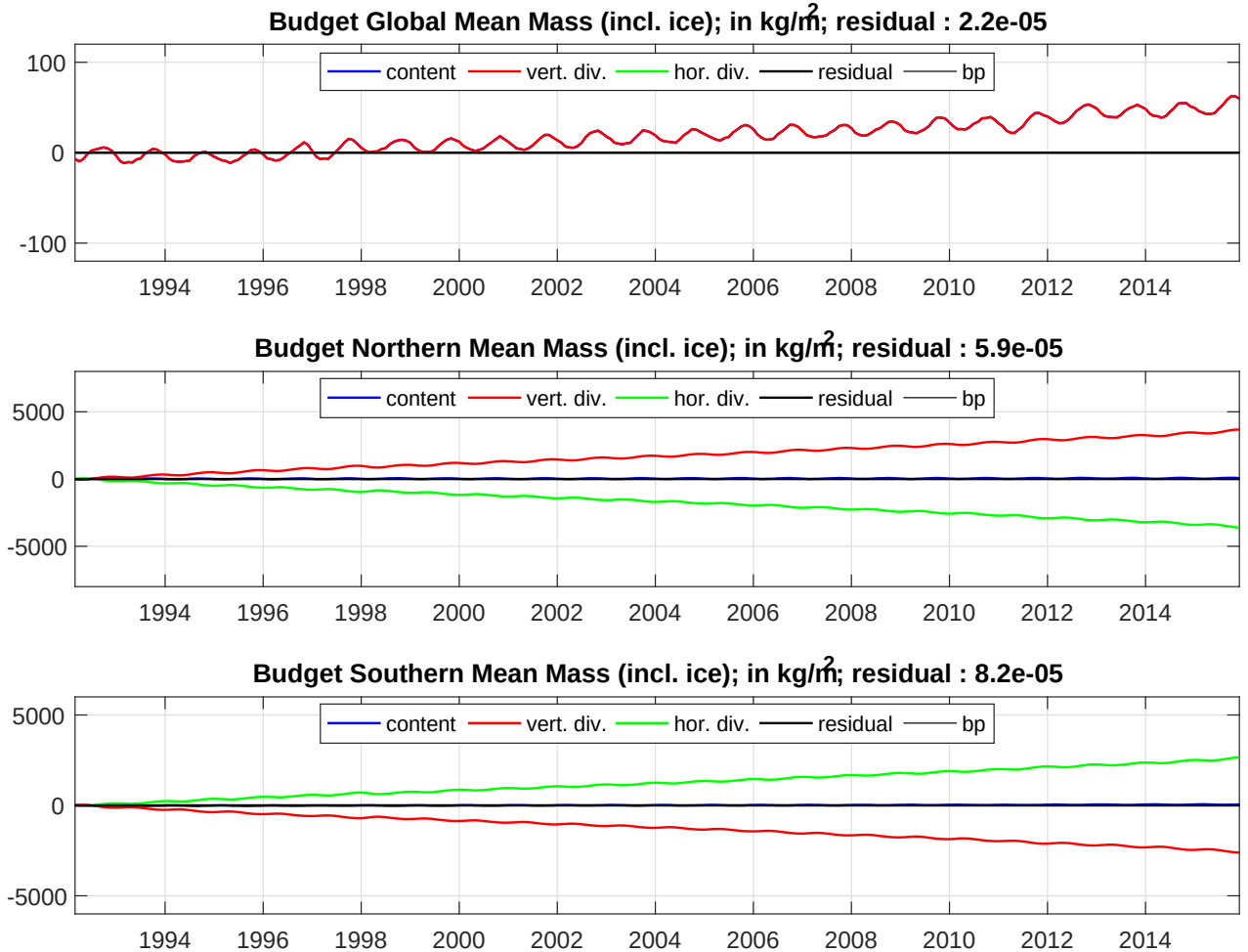

Figure: Global (upper), North (mid) and South (lower) Mass Budget (ocean+ice) in kg/m^2

budgets : volume, heat and salt (top to bottom)

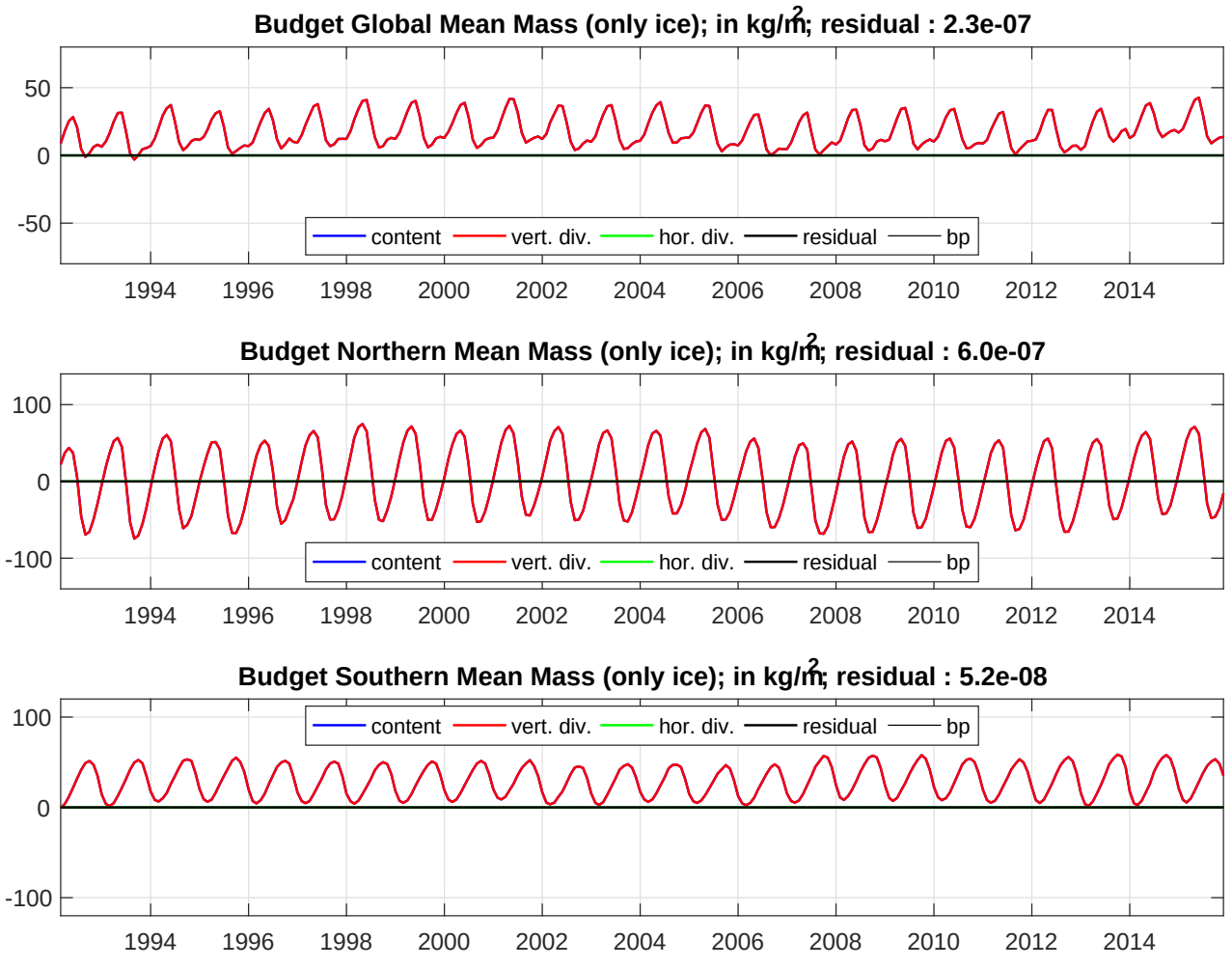

Figure: Global (upper), North (mid) and South (lower) Mass Budget (ice only) in kg/m^2

budgets : volume, heat and salt (top to bottom)

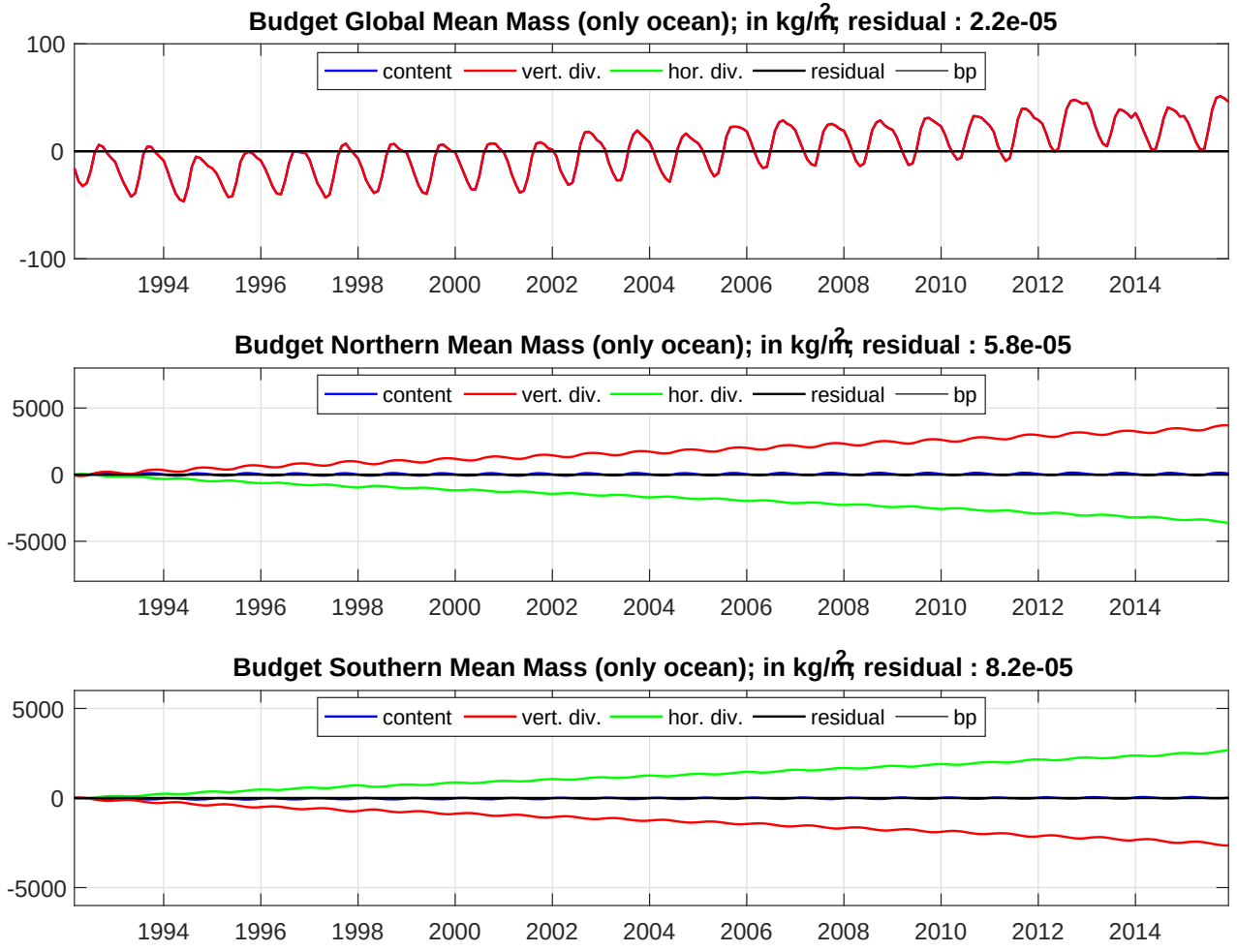

Figure: Global (upper), North (mid) and South (lower) Mass Budget (ocean only) in kg/m^2

budgets : volume, heat and salt (top to bottom)

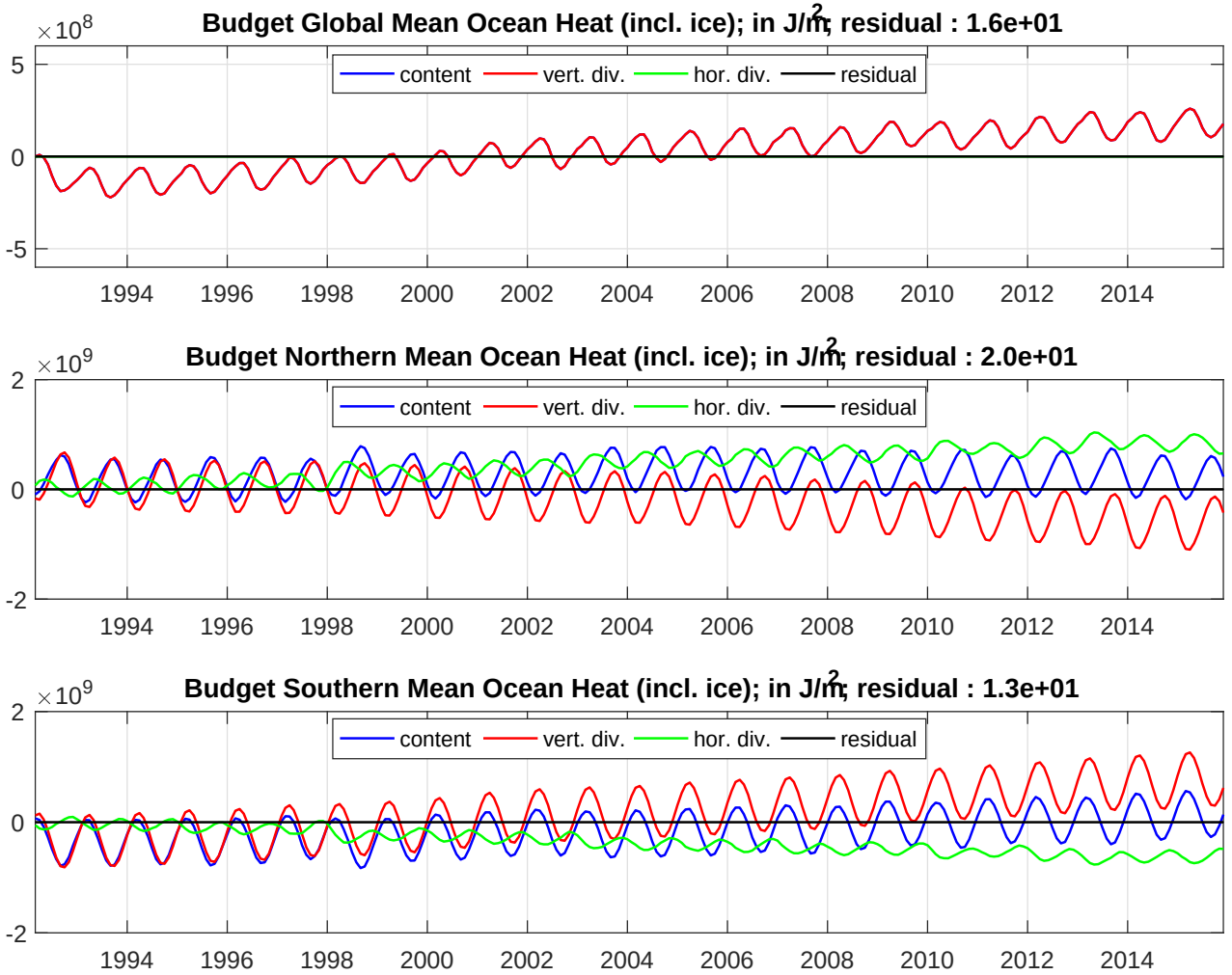

Figure: Global (upper), North (mid) and South (lower) Heat Budget (ocean+ice) in J/m^2

budgets : volume, heat and salt (top to bottom)

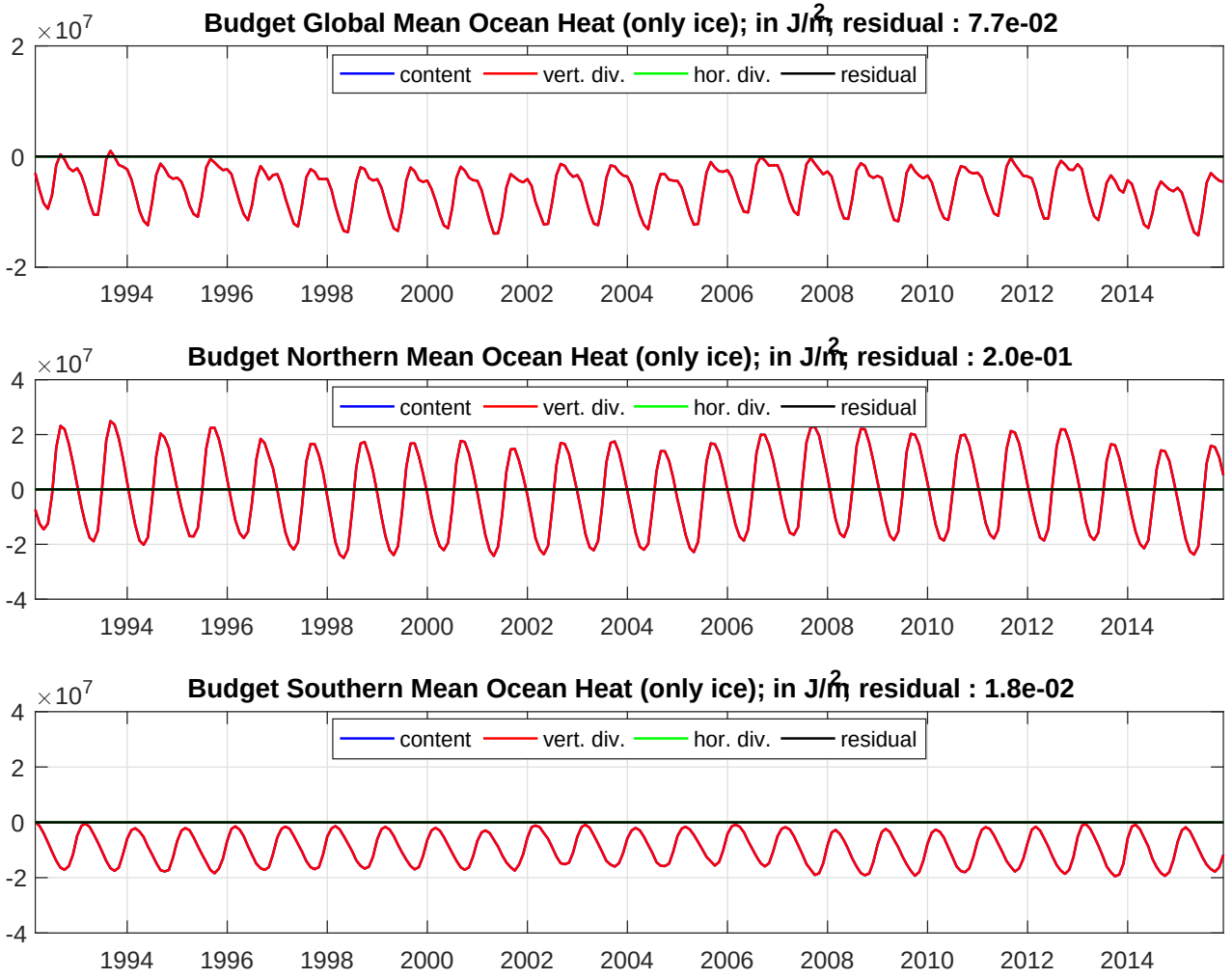

Figure: Global (upper), North (mid) and South (lower) Heat Budget (ice only) in J/m^2

budgets : volume, heat and salt (top to bottom)

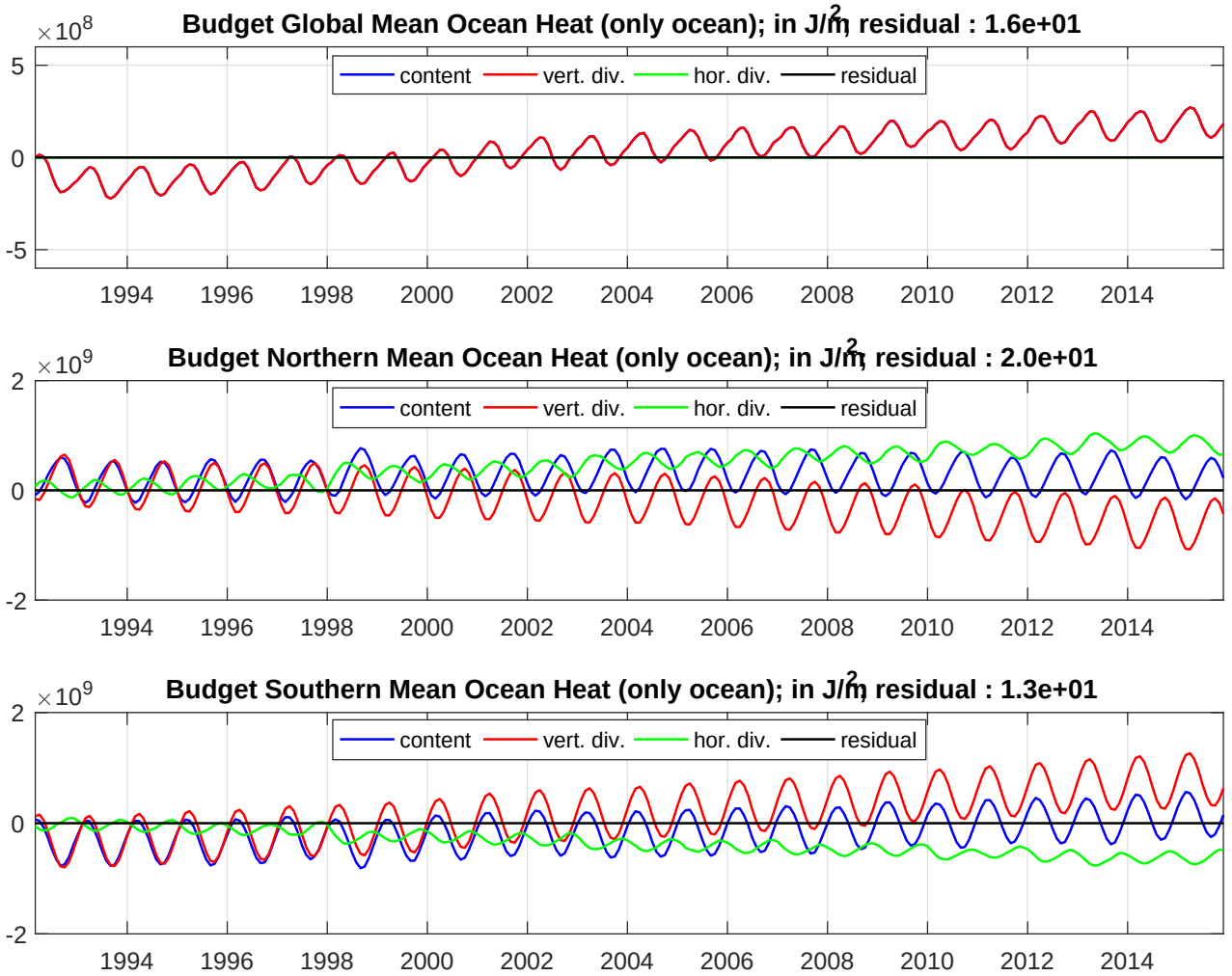

Figure: Global (upper), North (mid) and South (lower) Heat Budget (ocean only) in J/m^2

budgets : volume, heat and salt (top to bottom)

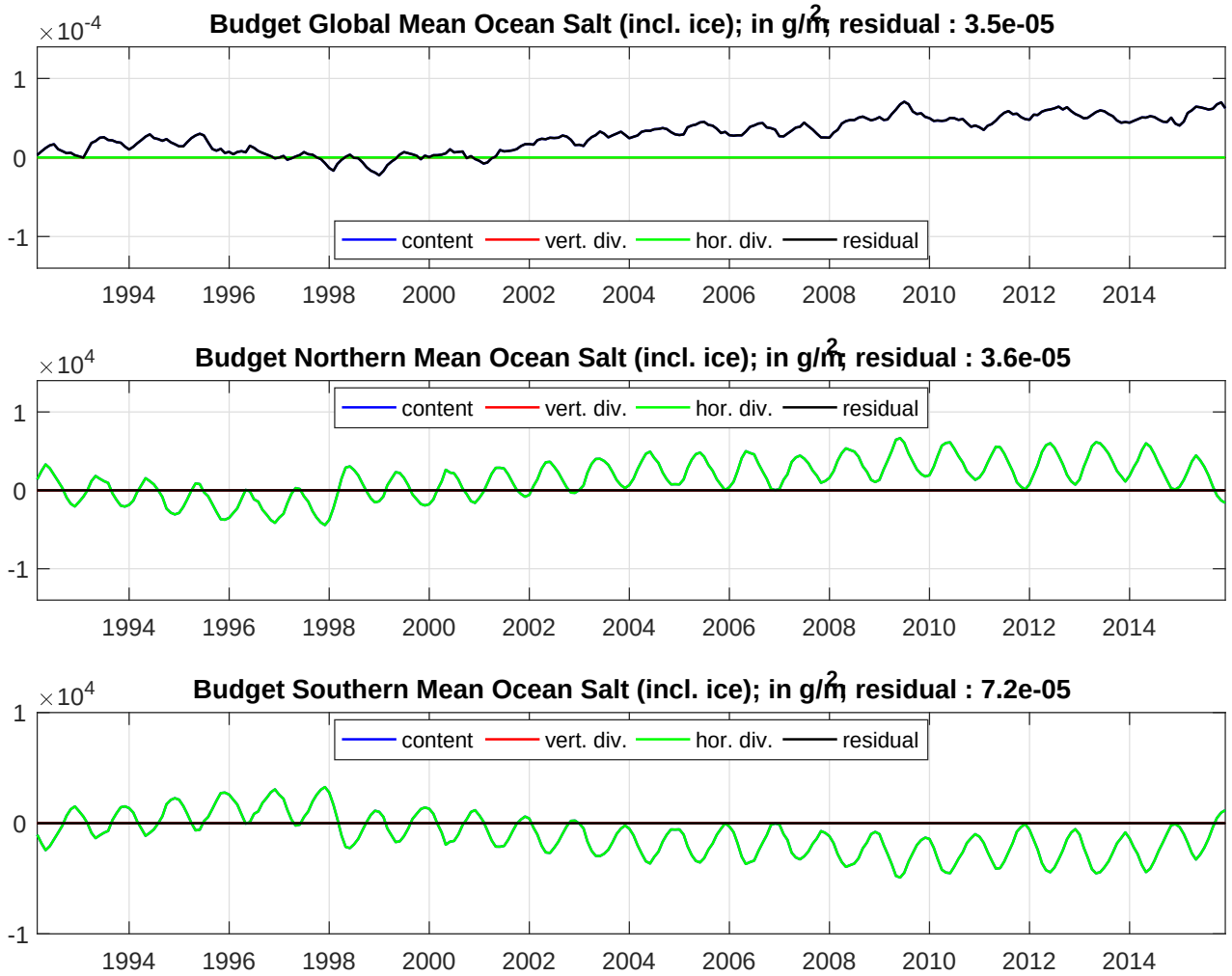

Figure: Global (upper), North (mid) and South (lower) Salt Budget (ocean+ice) in g/m^2

budgets : volume, heat and salt (top to bottom)

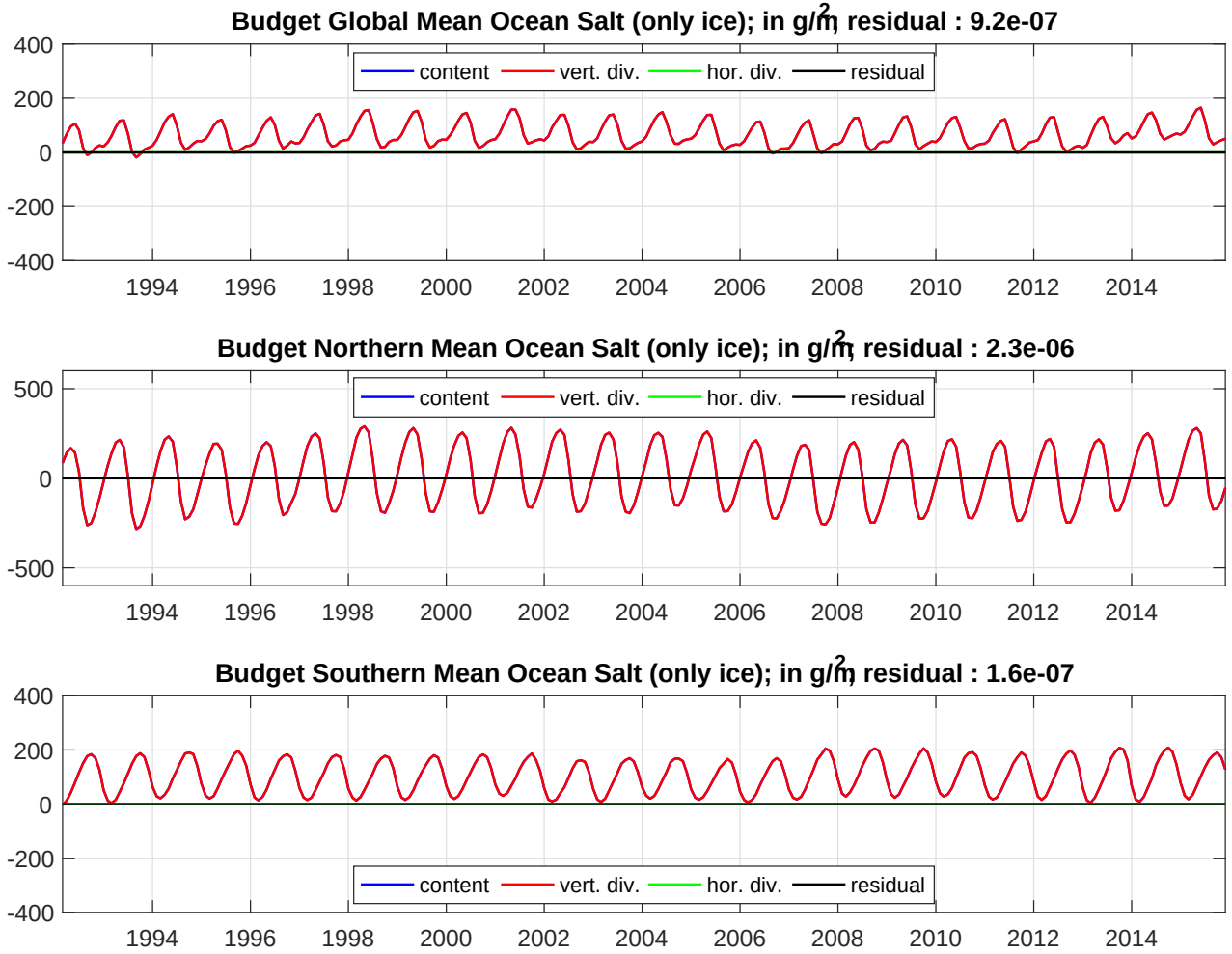

Figure: Global (upper), North (mid) and South (lower) Salt Budget (ice only) in g/m^2

budgets : volume, heat and salt (top to bottom)

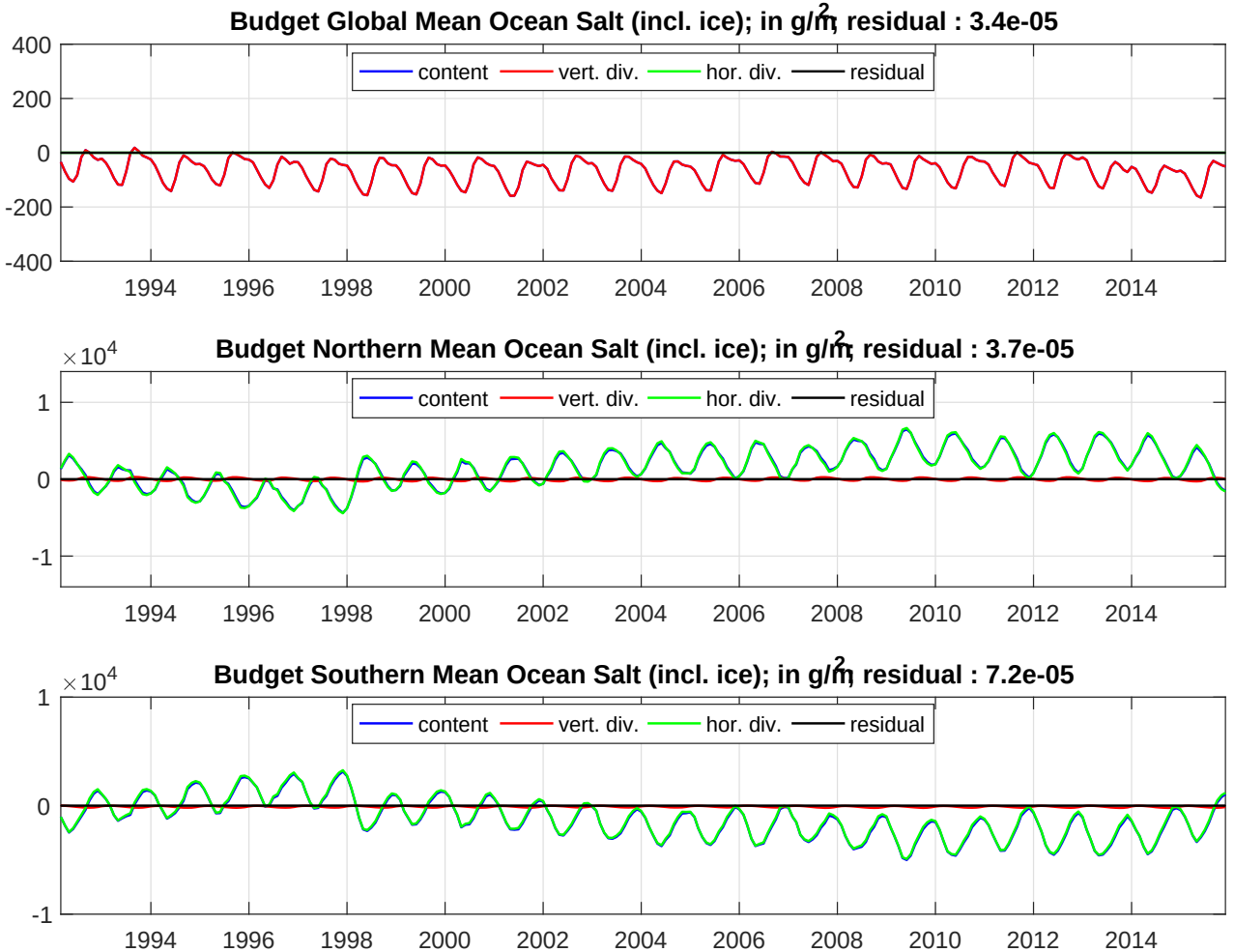

Figure: Global (upper), North (mid) and South (lower) Salt Budget (ocean only) in g/m^2

mixed layer depth fields

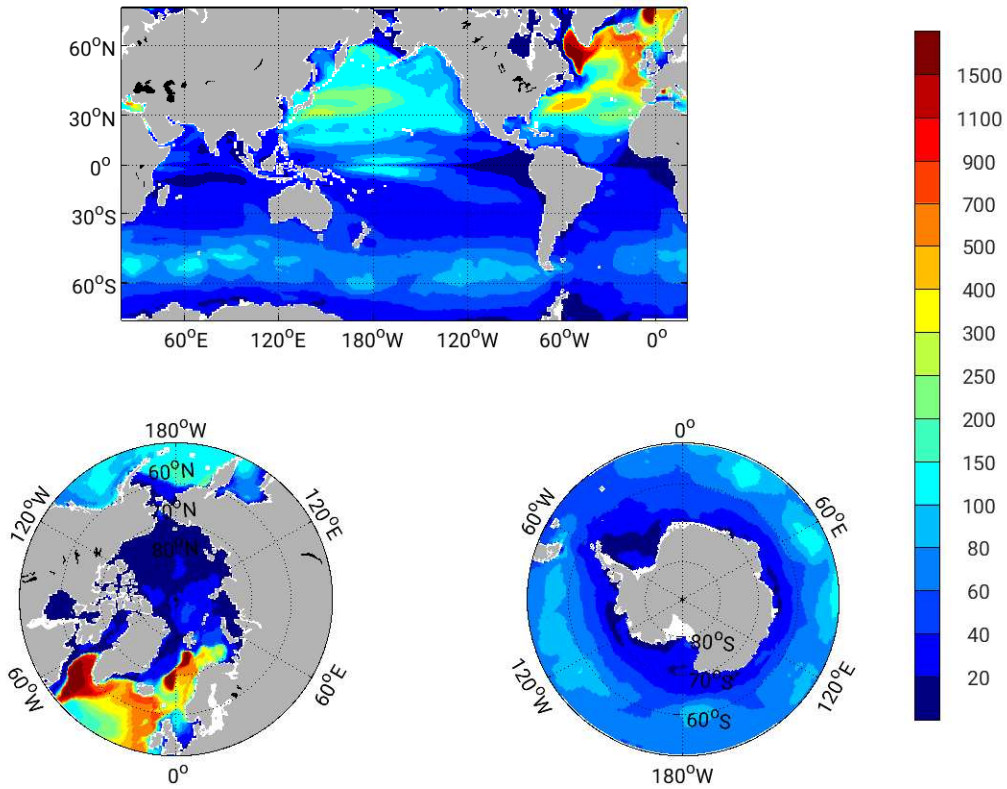

Figure: March Mixed Layer Depth per Kara Formula (m): 1992 thru 2015 Mean

mixed layer depth fields

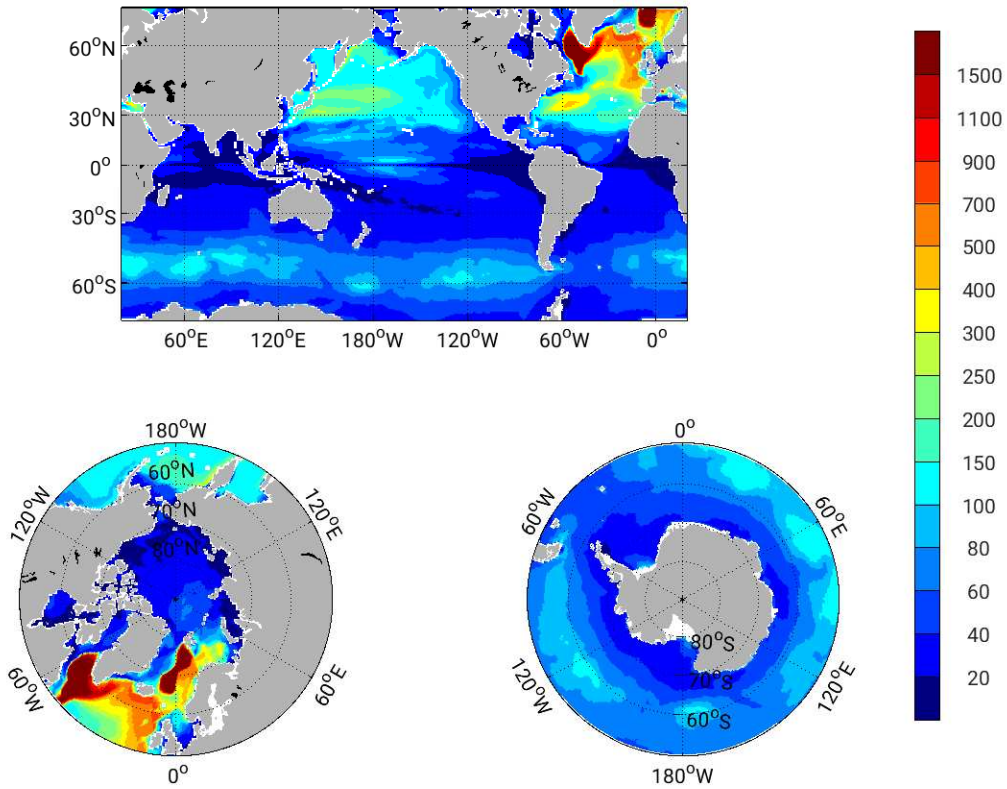

Figure: March Mixed Layer Depth per Suga Formula (m): 1992 thru 2015 Mean

mixed layer depth fields

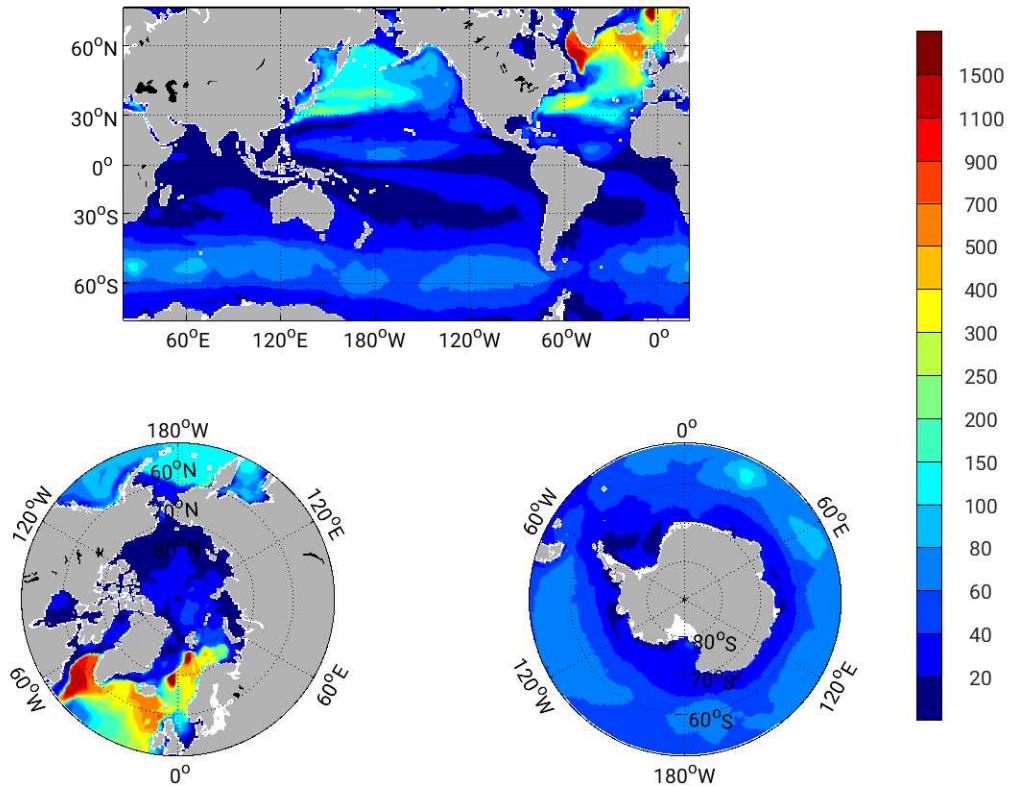

Figure: March Mixed Layer Depth per Boyer M. Formula (m): 1992 thru 2015 Mean

mixed layer depth fields

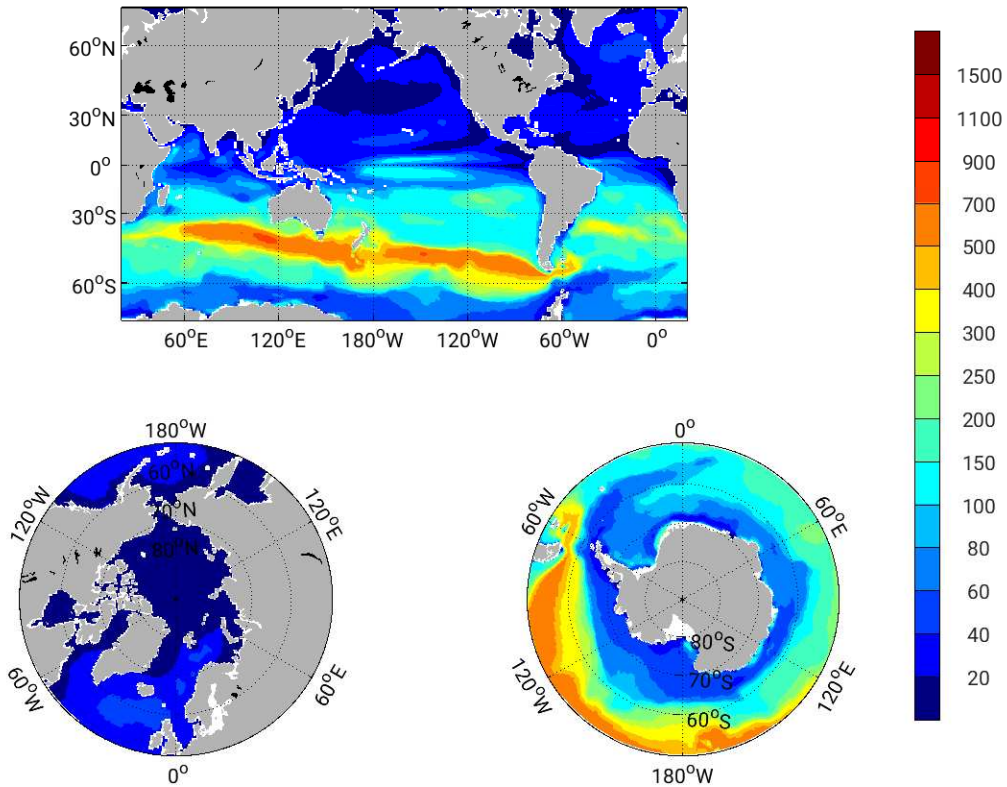

Figure: September Mixed Layer Depth per Kara Formula (m): 1992 thru 2015 Mean

mixed layer depth fields

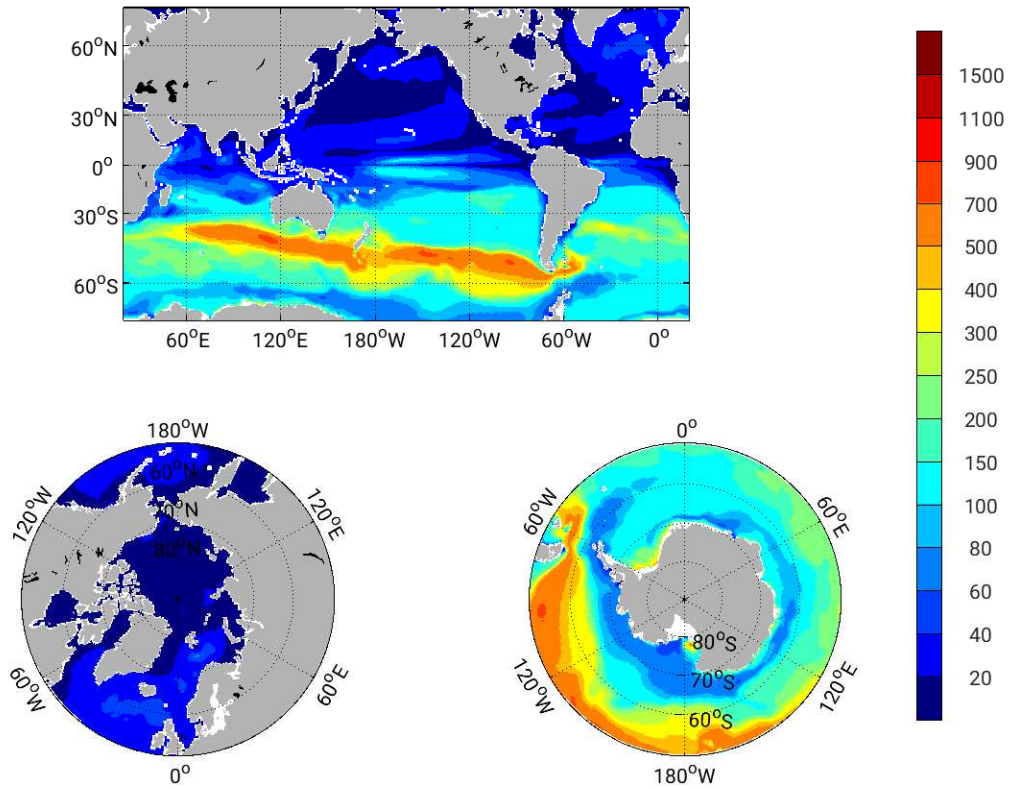

Figure: September Mixed Layer Depth per Suga Formula (m): 1992 thru 2015 Mean

mixed layer depth fields

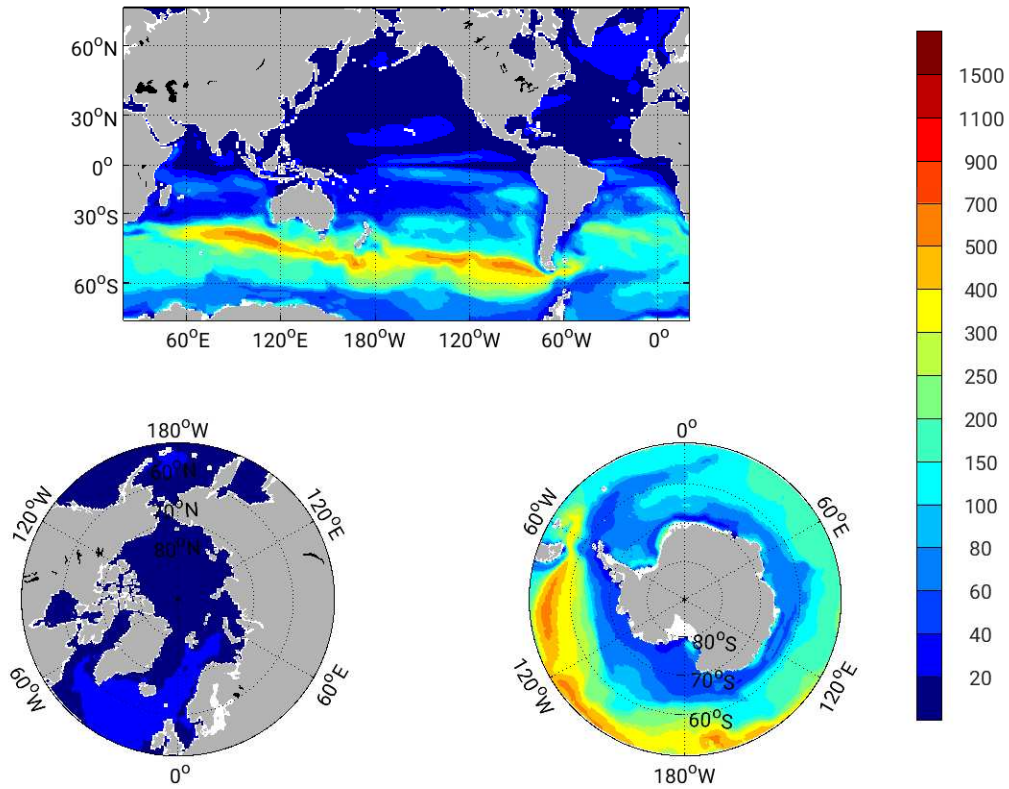

Figure: September Mixed Layer Depth per Boyer M. Formula (m): 1992 thru 2015 Mean

Monthly Thickness Distribution

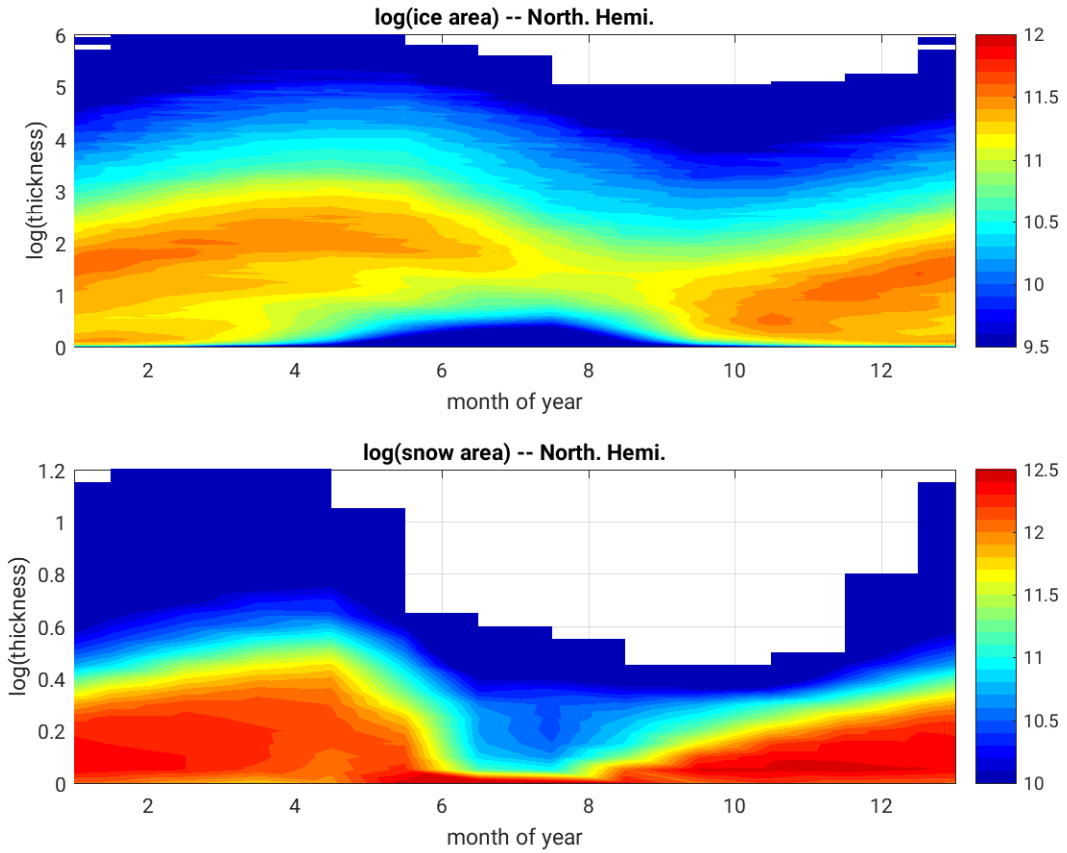

Figure: Northern Hemisphere Monthly Mean Sea Ice (top) and Snow (bottom) Thickness Distribution ($\log(m^2)$): 1992 thru 2015 Mean

Monthly Thickness Distribution

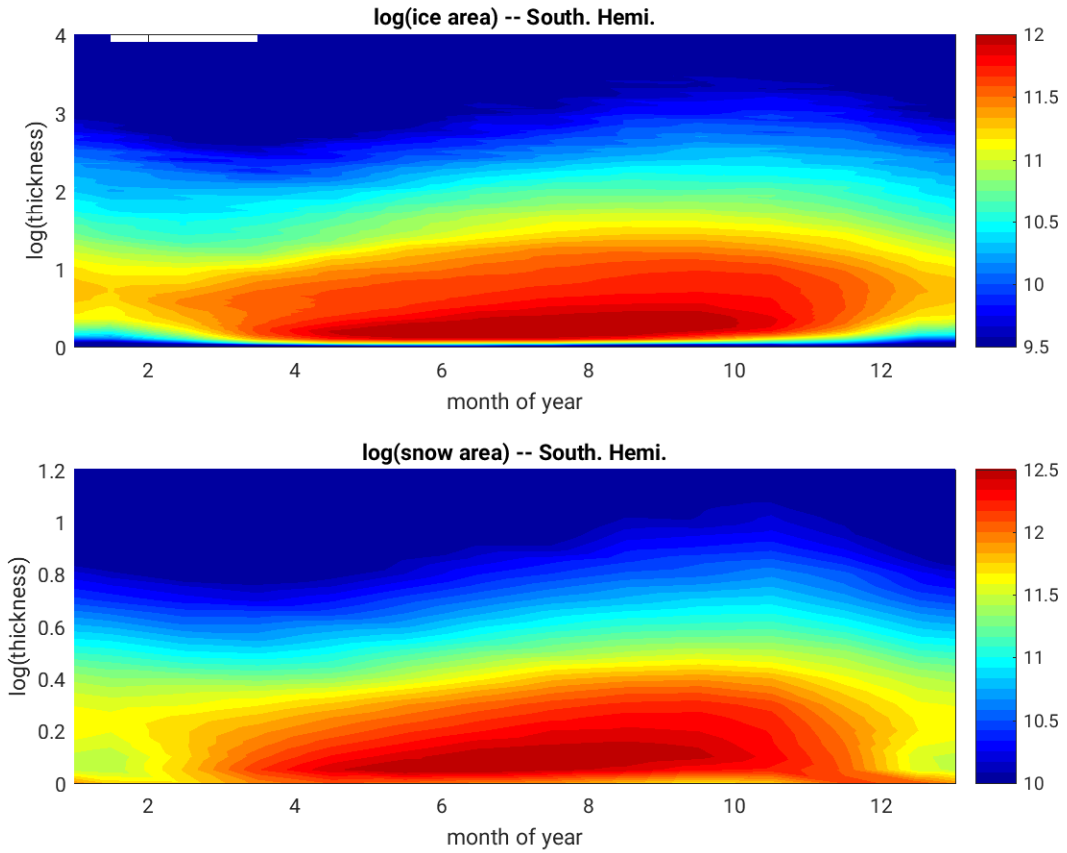

Figure: Southern Hemisphere Monthly Mean Sea Ice (top) and Snow (bottom) Thickness Distribution ($\log(m^2)$): 1992 thru 2015 Mean

Sea Ice Concentration (unitless): March

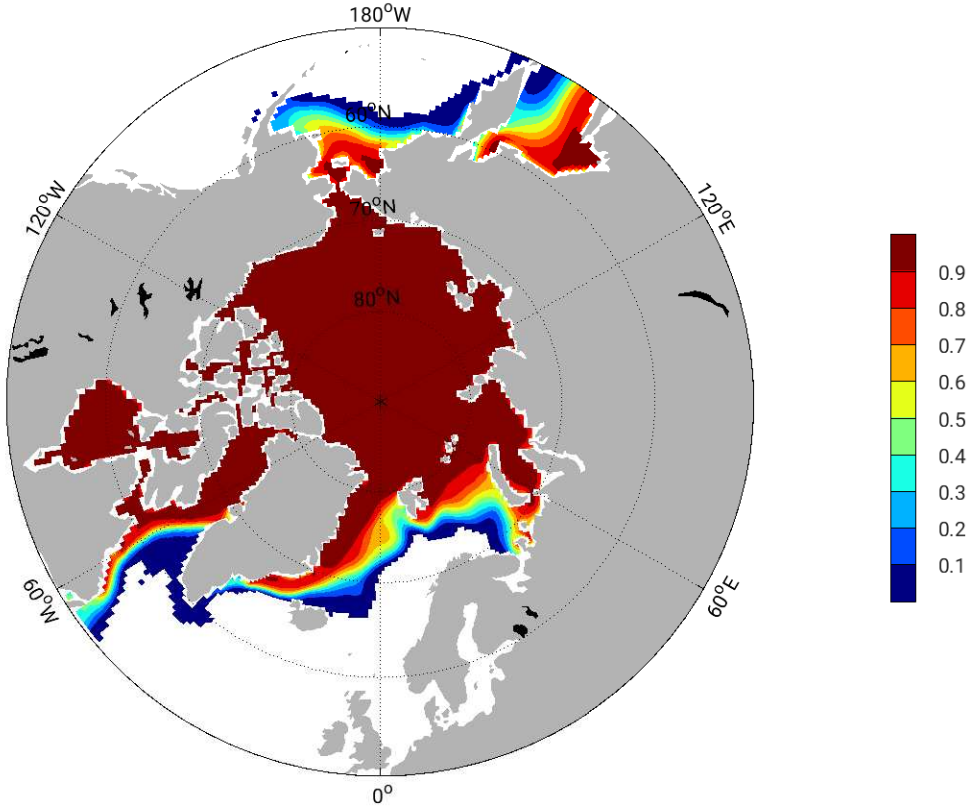

Figure: March Sea Ice Concentration (unitless): 1992 thru 2015 Mean

Sea Ice Thickness (m): March

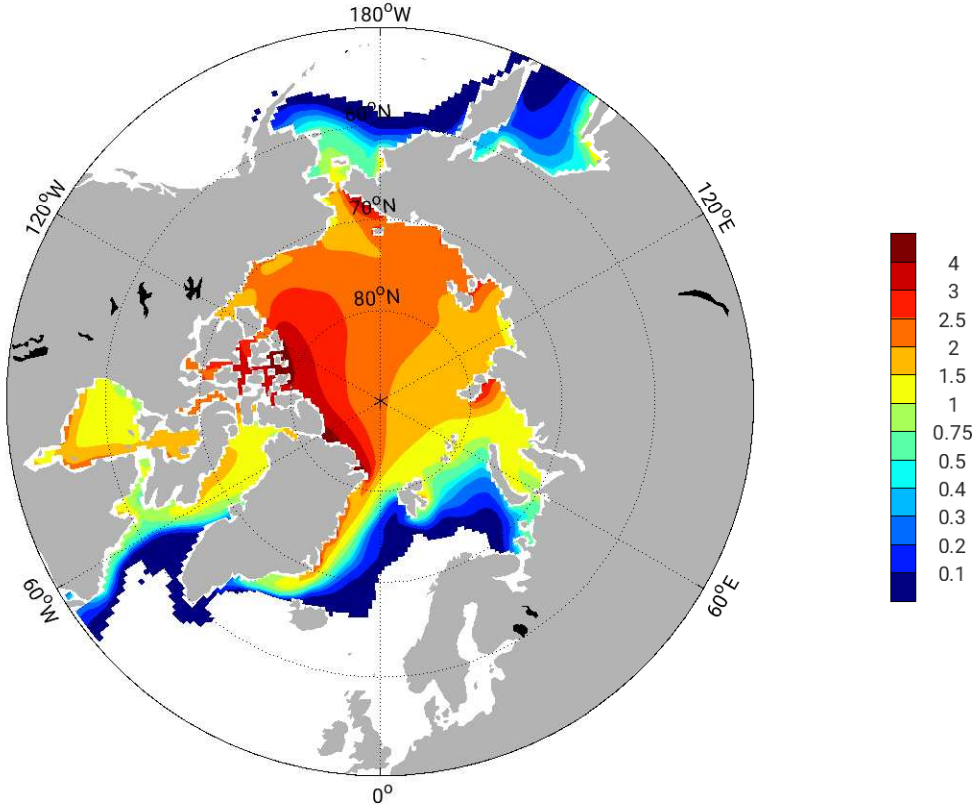

Figure: March Sea Ice Thickness (m): 1992 thru 2015 Mean

Snow Thickness (m): March

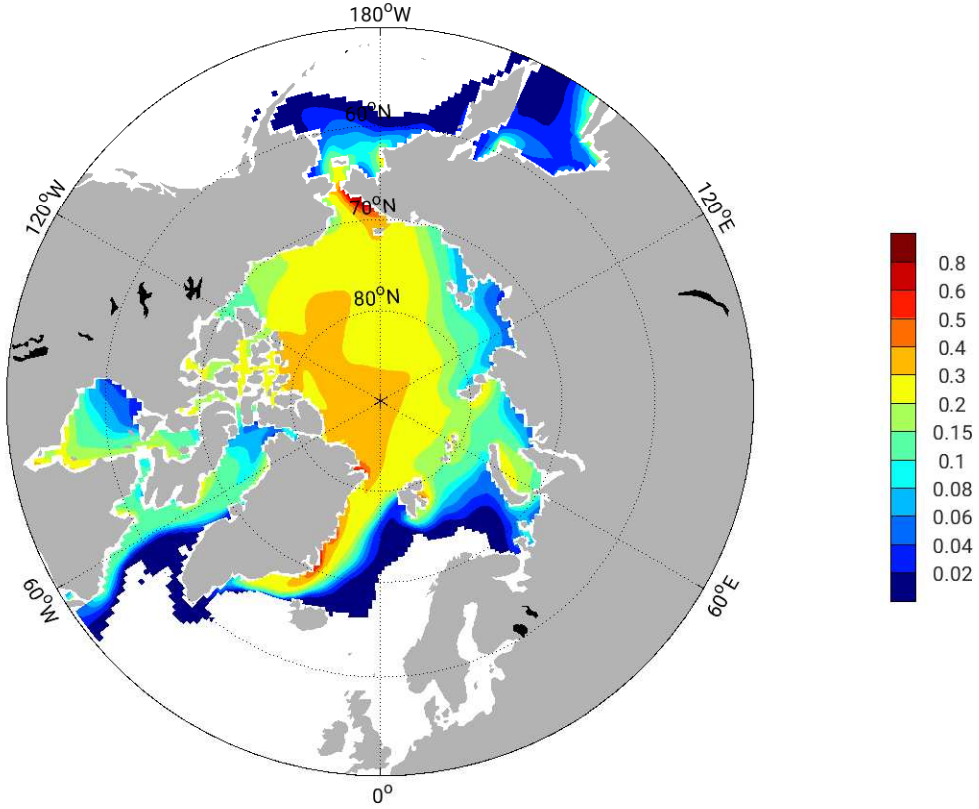

Figure: March Snow Thickness (m): 1992 thru 2015 Mean

Sea Ice+Snow Streamfunction (megaton/s): March

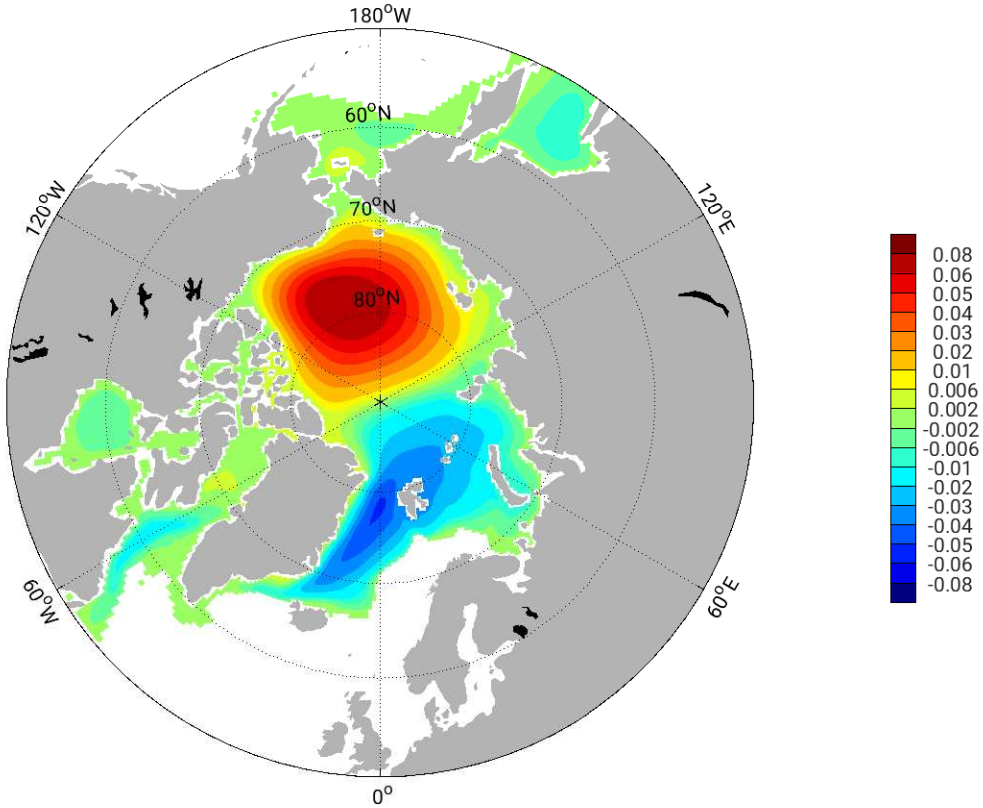

Figure: March Sea Ice+Snow Streamfunction (megaton/s): 1992 thru 2015 Mean

Sea Ice+Snow Convergence (kiloton/s): March

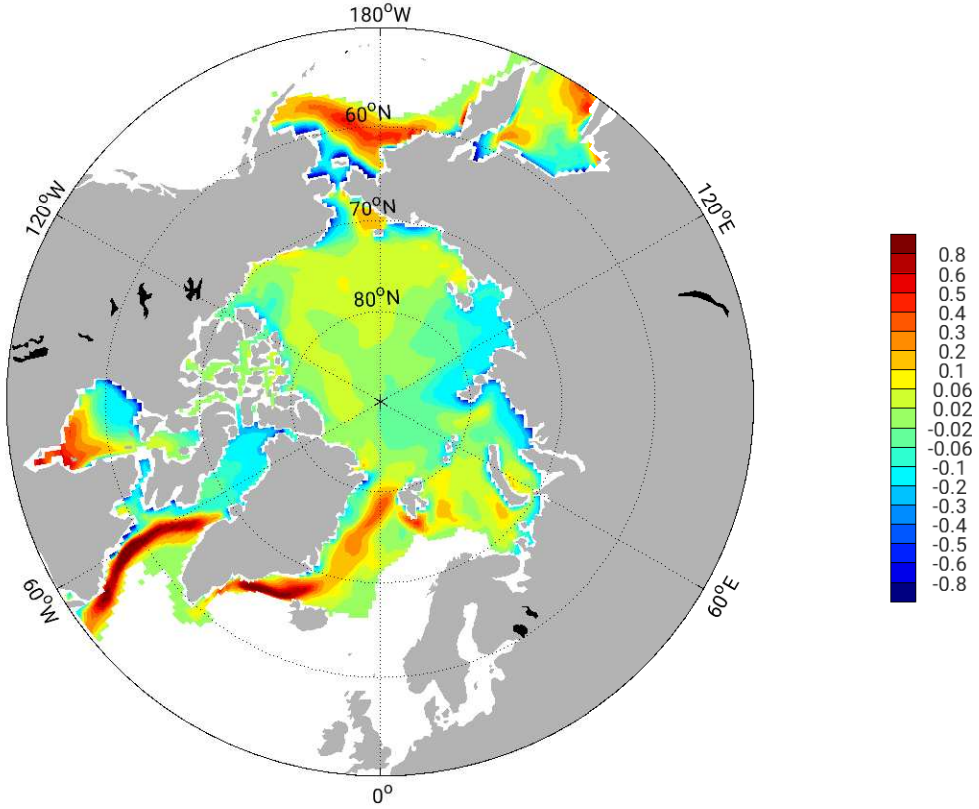

Figure: March Sea Ice+Snow Convergence (kiloton/s): 1992 thru 2015 Mean

Sea Ice Concentration (unitless): September

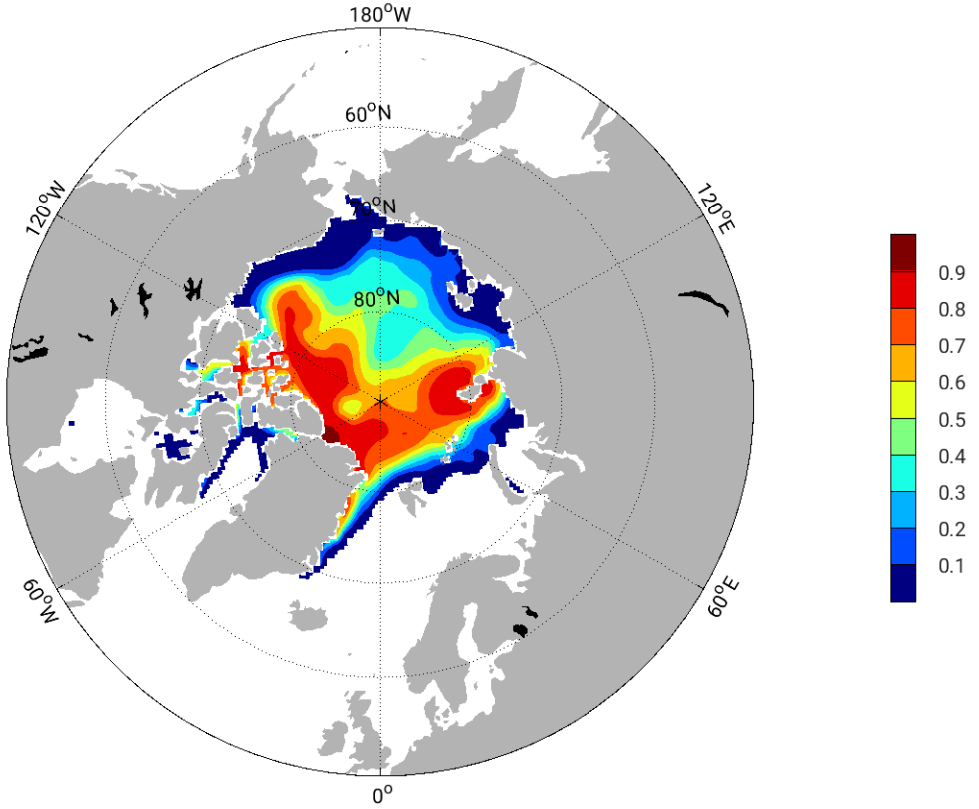

Figure: September Sea Ice Concentration (unitless): 1992 thru 2015 Mean

Sea Ice Thickness (m): September

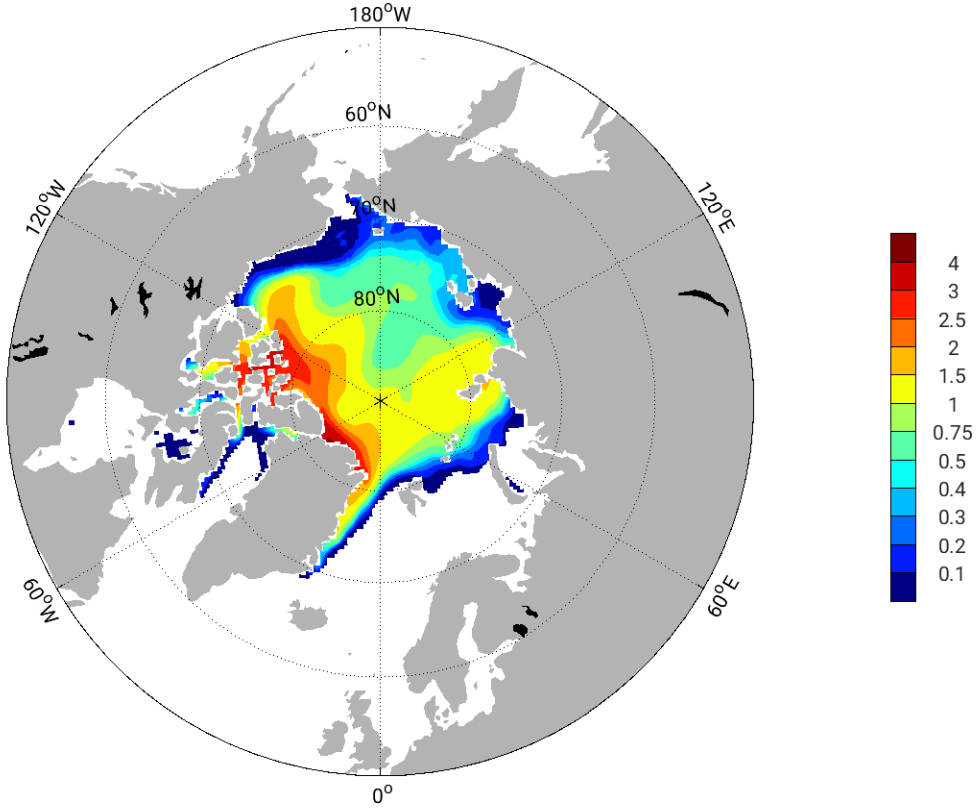

Figure: September Sea Ice Thickness (m): 1992 thru 2015 Mean

Snow Thickness (m): September

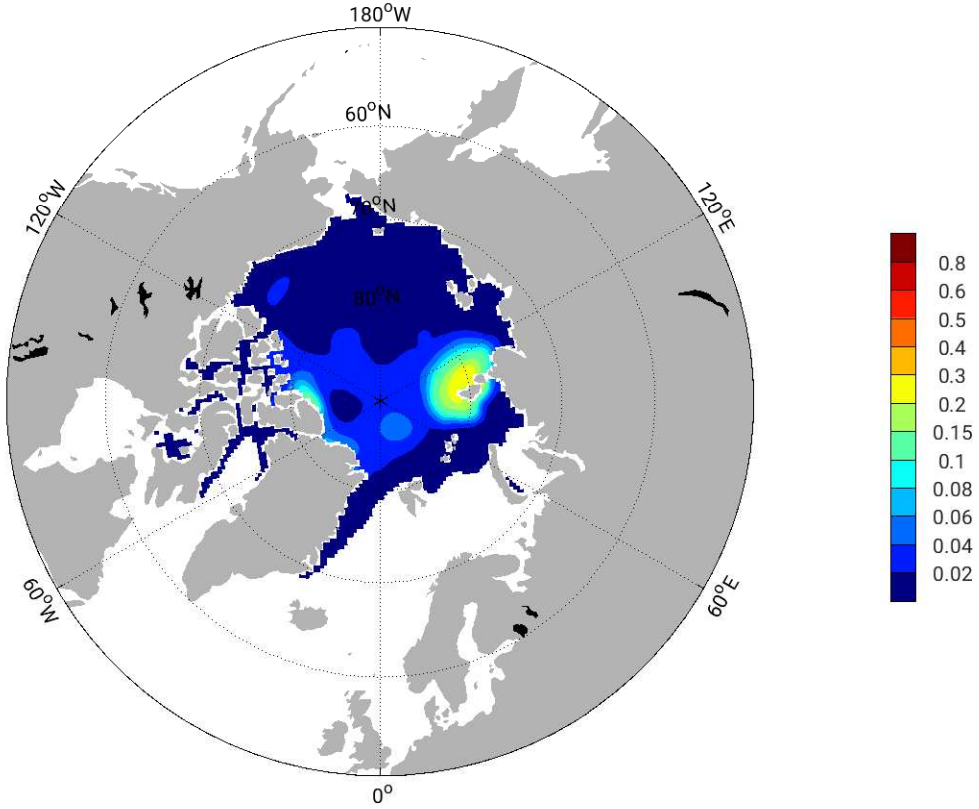

Figure: September Snow Thickness (m): 1992 thru 2015 Mean

Sea Ice+Snow Streamfunction (megaton/s): September

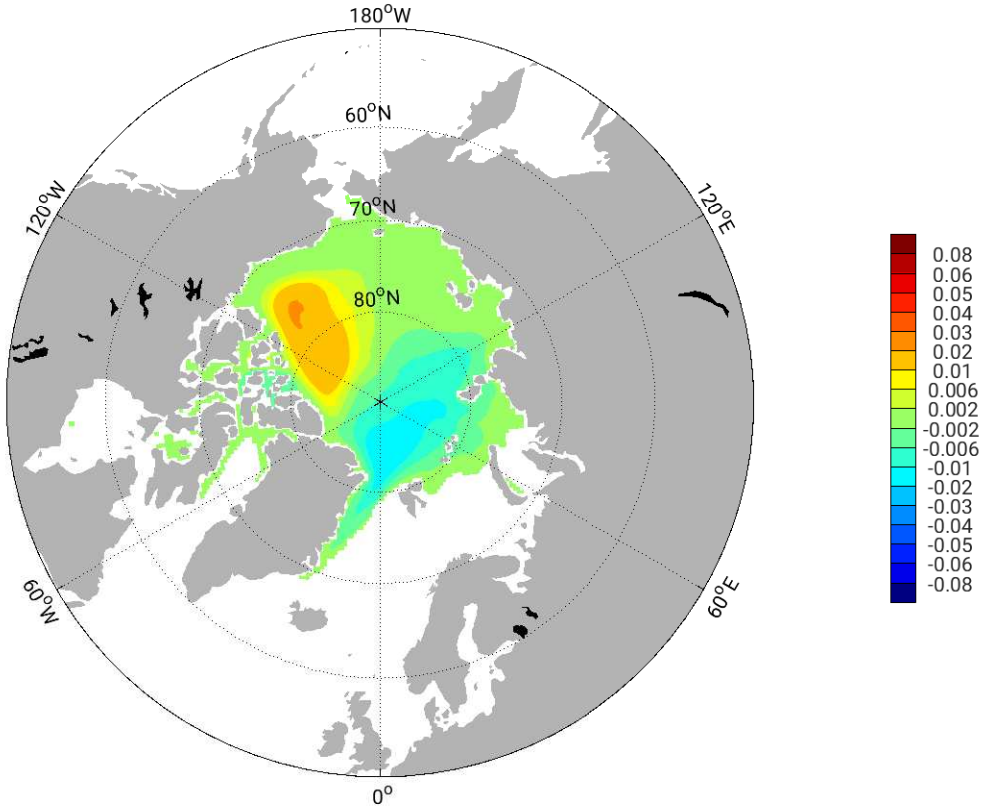

Figure: September Sea Ice+Snow Streamfunction (megaton/s): 1992 thru 2015 Mean

Sea Ice+Snow Convergence (kiloton/s): September

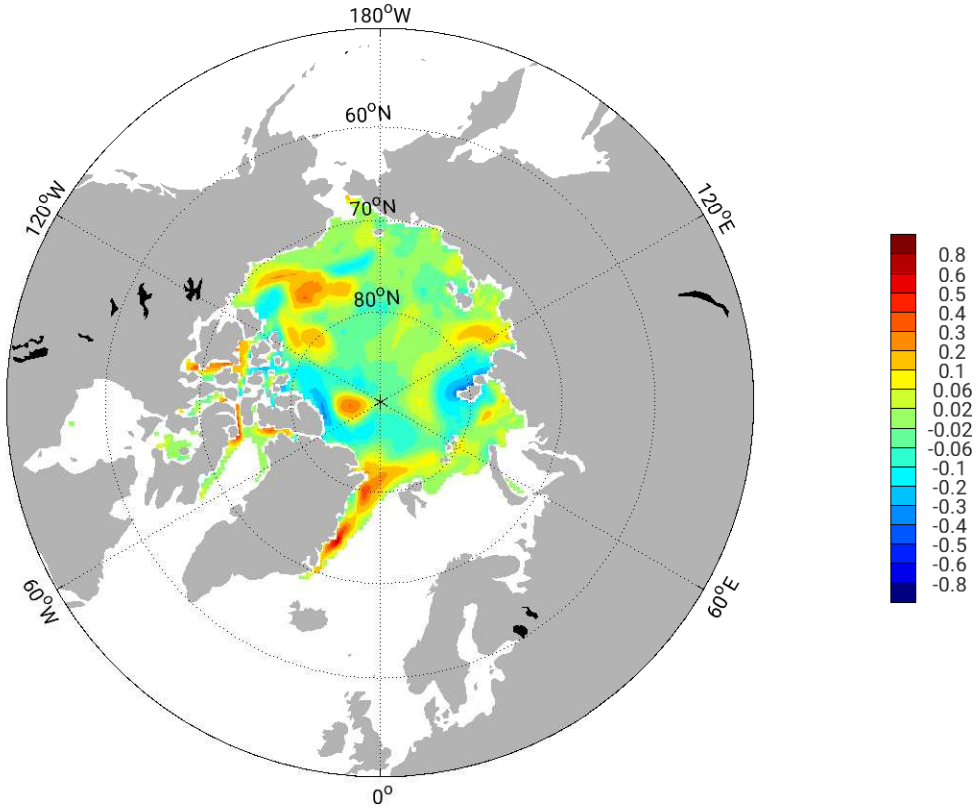

Figure: September Sea Ice+Snow Convergence (kiloton/s): 1992 thru 2015 Mean

Sea Ice Concentration (unitless): March

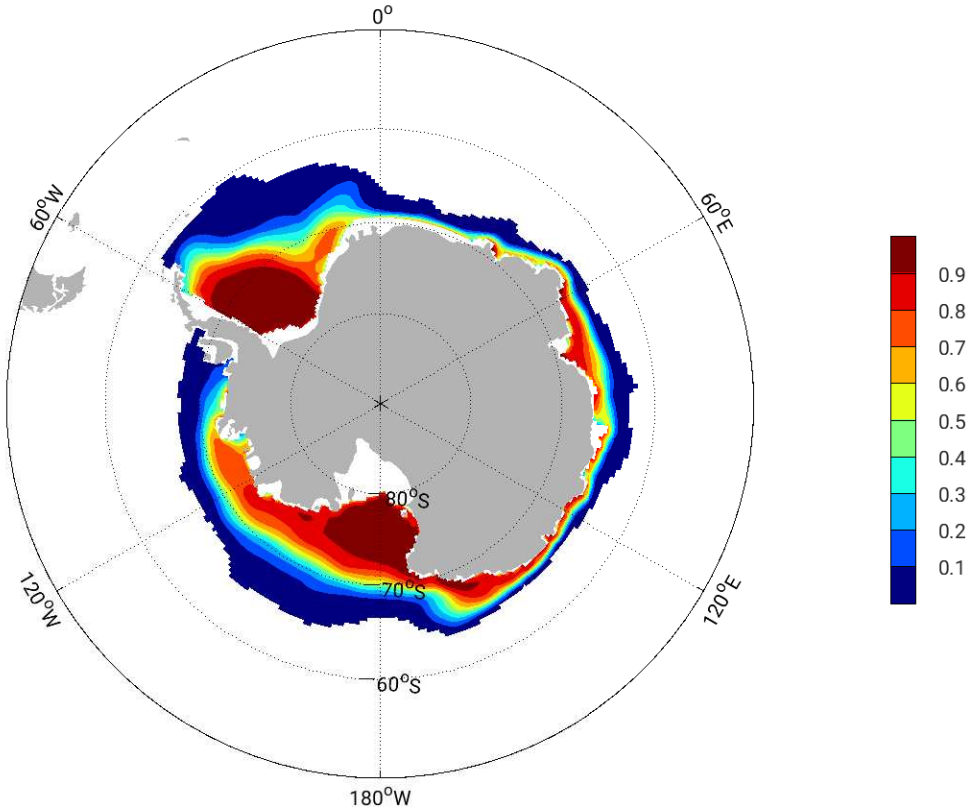

Figure: March Sea Ice Concentration (unitless): 1992 thru 2015 Mean

Sea Ice Thickness (m): March

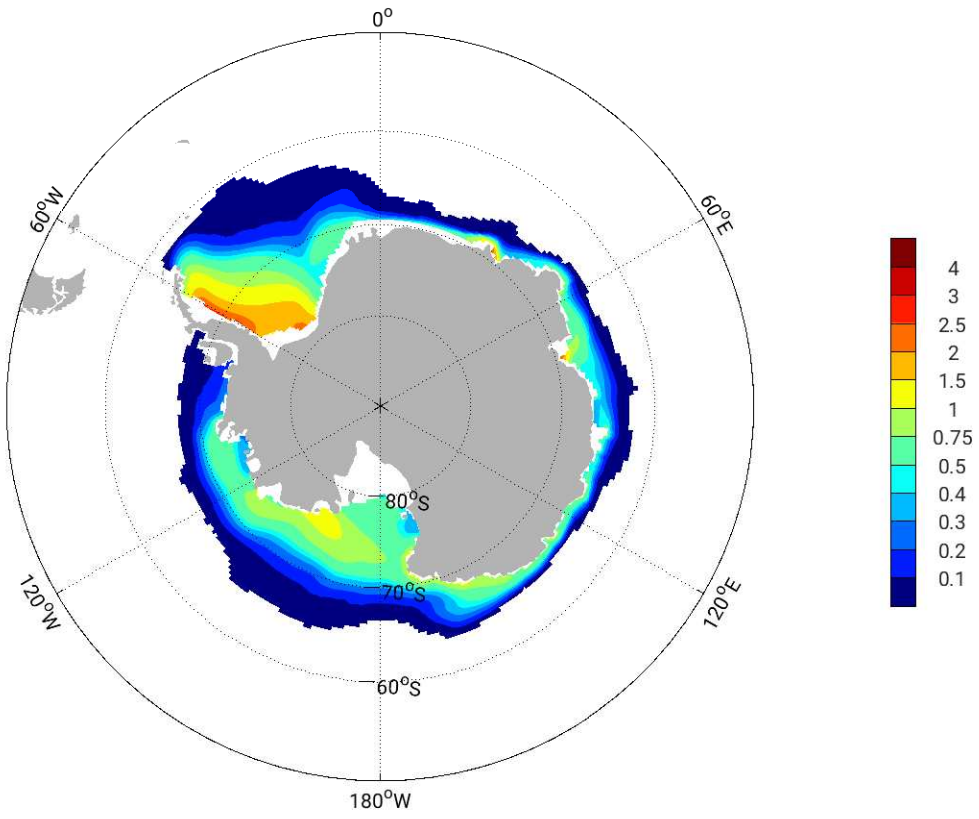

Figure: March Sea Ice Thickness (m): 1992 thru 2015 Mean

Snow Thickness (m): March

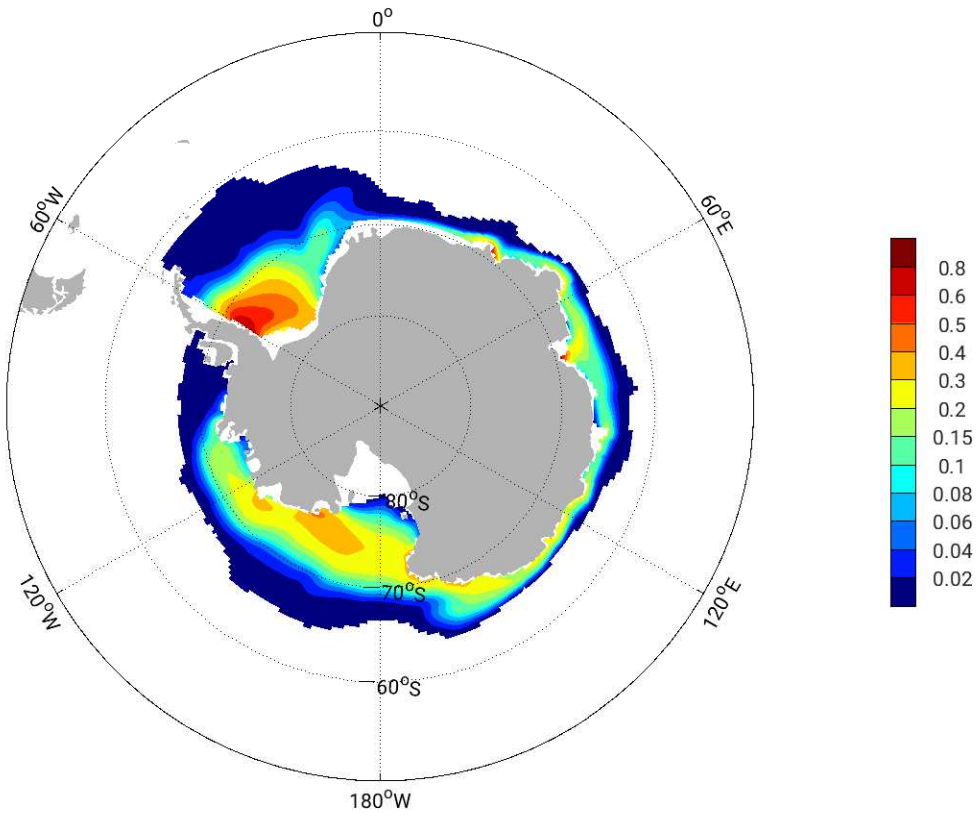

Figure: March Snow Thickness (m): 1992 thru 2015 Mean

Sea Ice+Snow Streamfunction (megaton/s): March

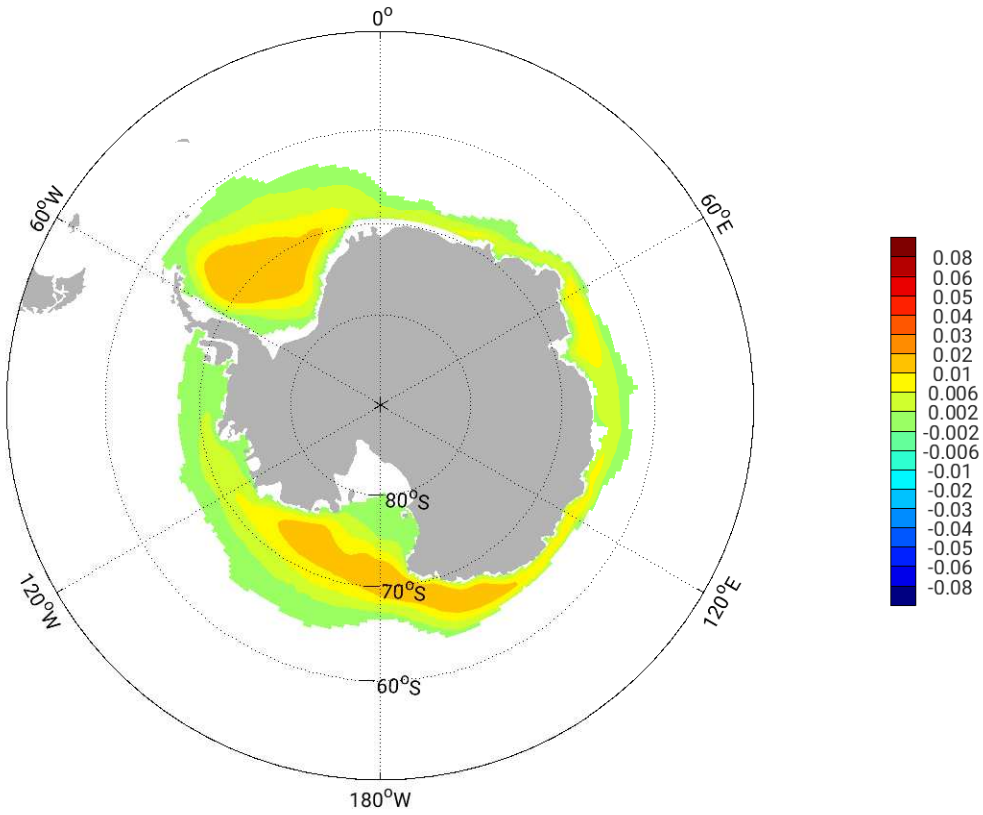

Figure: March Sea Ice+Snow Streamfunction (megaton/s): 1992 thru 2015 Mean

Sea Ice+Snow Convergence (kiloton/s): March

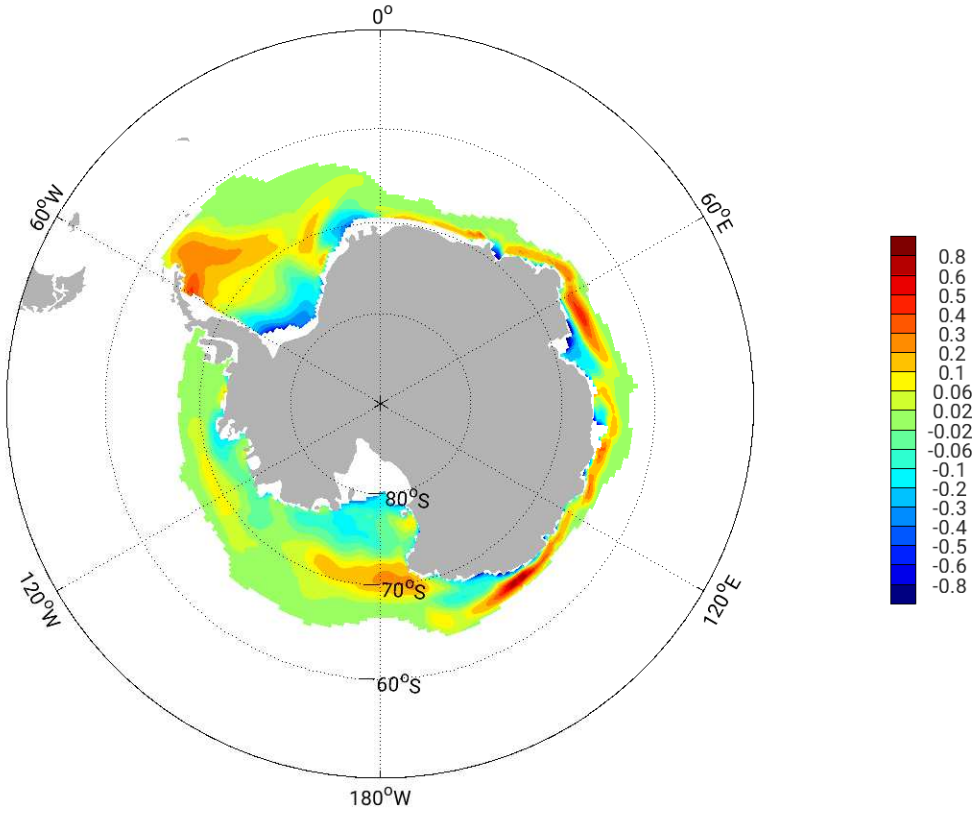

Figure: March Sea Ice+Snow Convergence (kiloton/s): 1992 thru 2015 Mean

Sea Ice Concentration (unitless): September

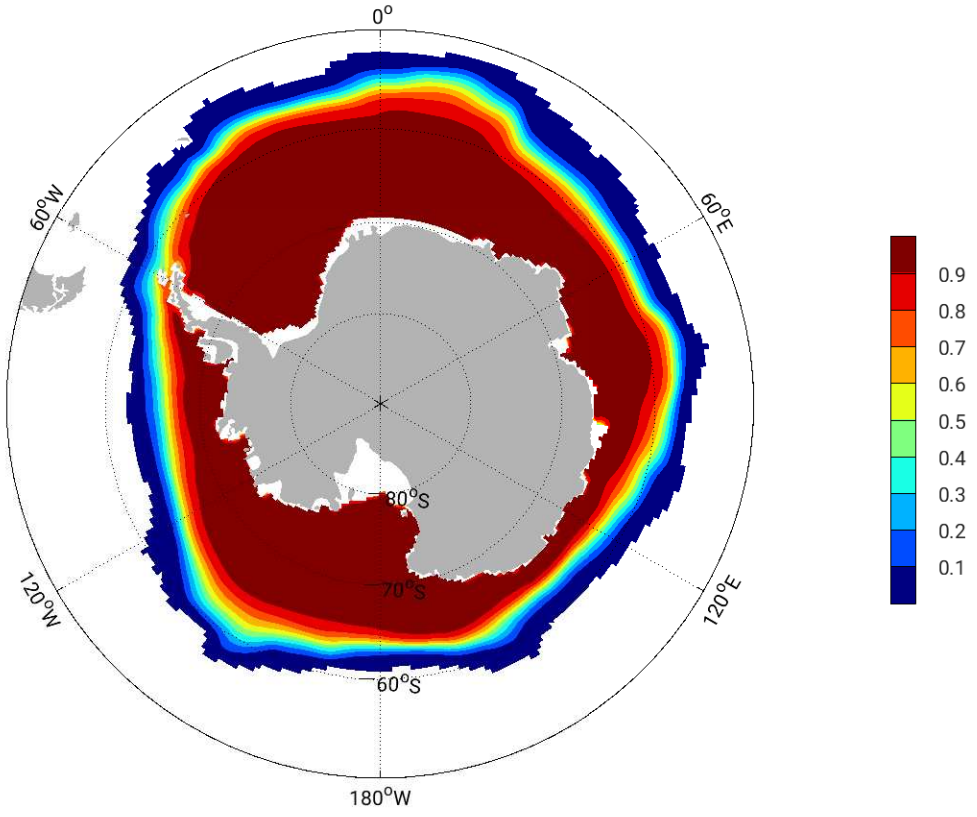

Figure: September Sea Ice Concentration (unitless): 1992 thru 2015 Mean

Sea Ice Thickness (m): September

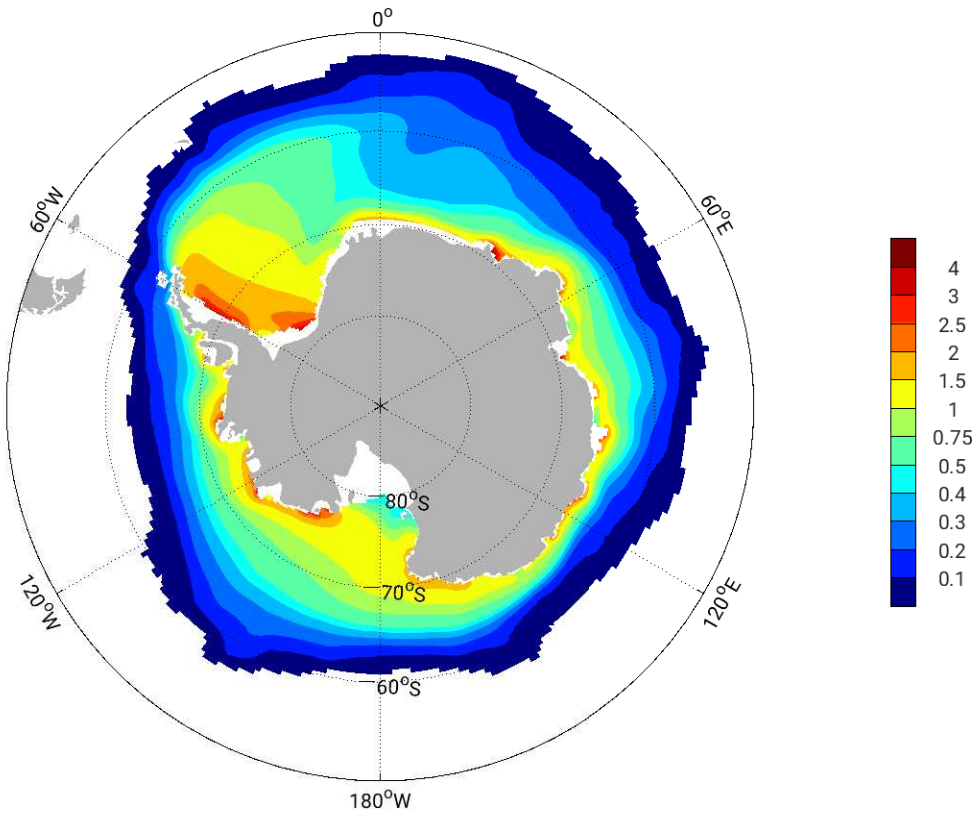

Figure: September Sea Ice Thickness (m): 1992 thru 2015 Mean

Snow Thickness (m): September

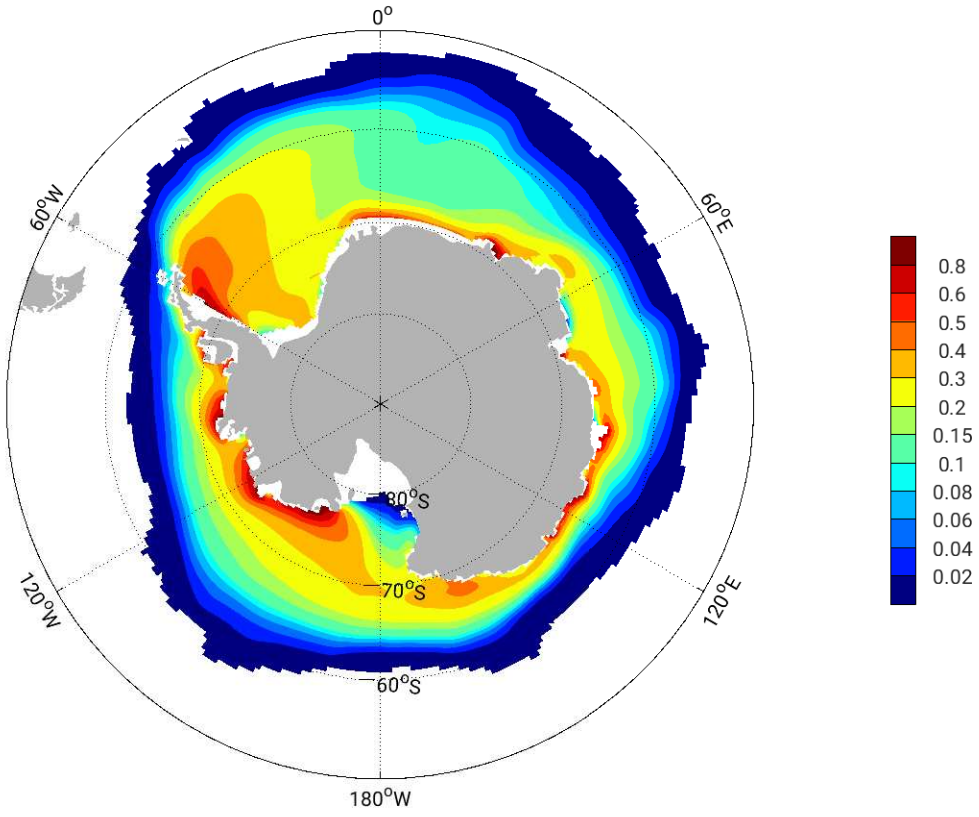

Figure: September Snow Thickness (m): 1992 thru 2015 Mean

Sea Ice+Snow Streamfunction (megaton/s): September

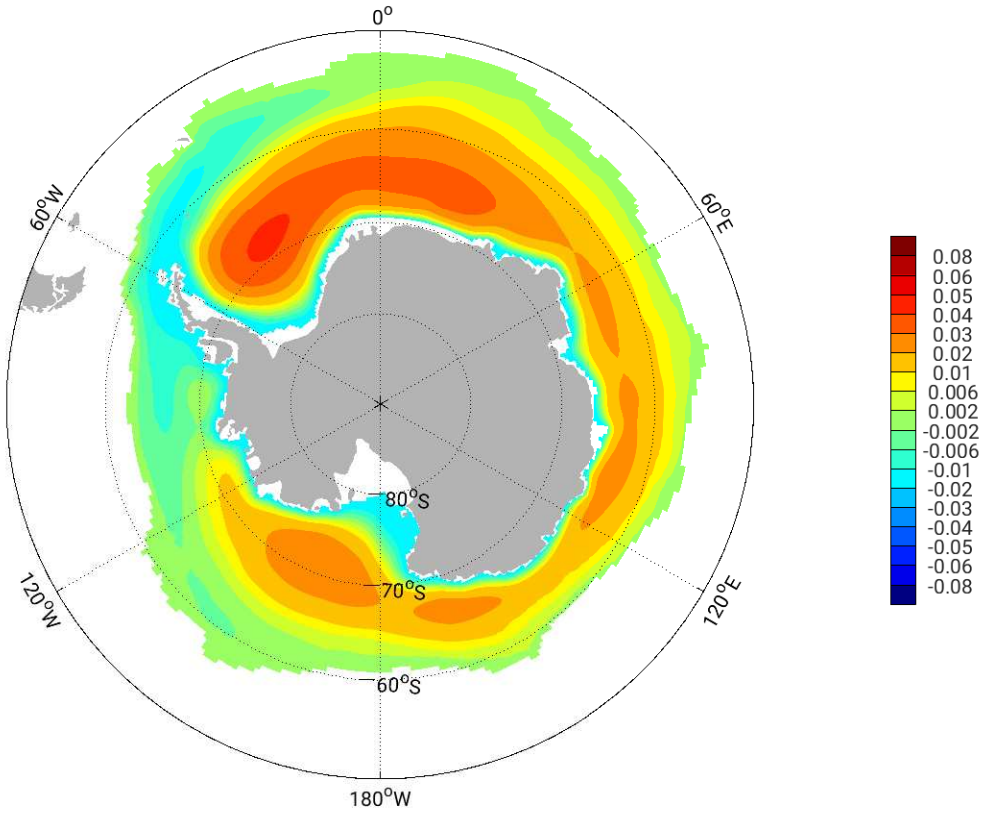

Figure: September Sea Ice+Snow Streamfunction (megaton/s): 1992 thru 2015 Mean

Sea Ice+Snow Convergence (kiloton/s): September

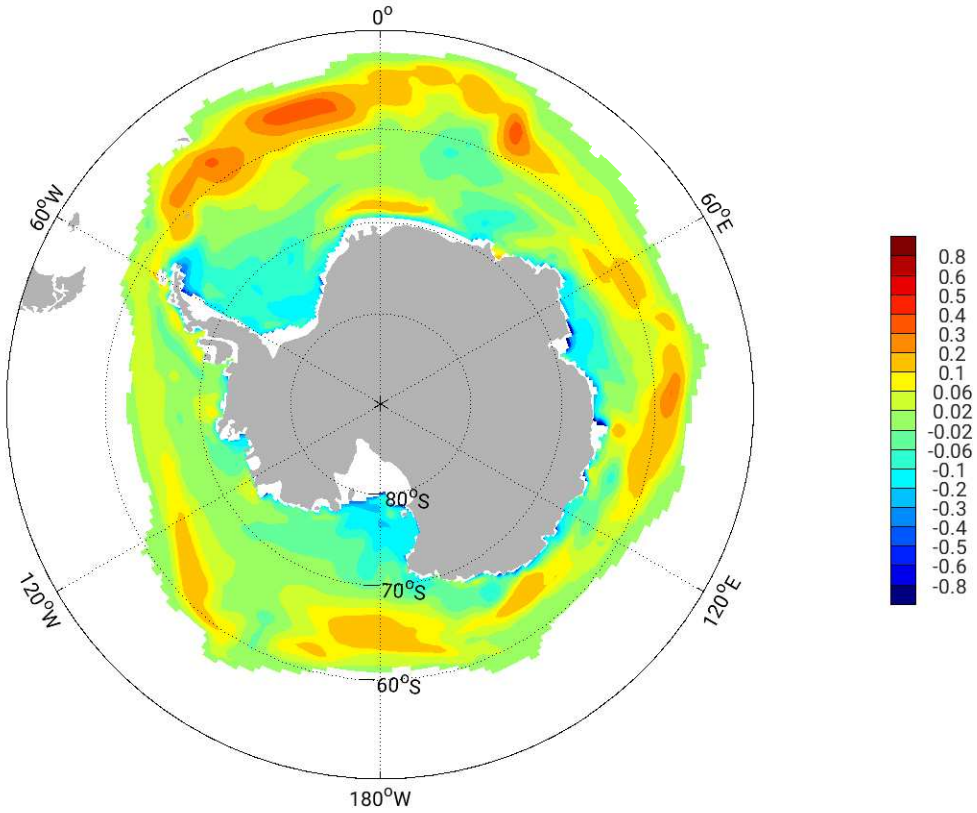

Figure: September Sea Ice+Snow Convergence (kiloton/s): 1992 thru 2015 Mean

atemp

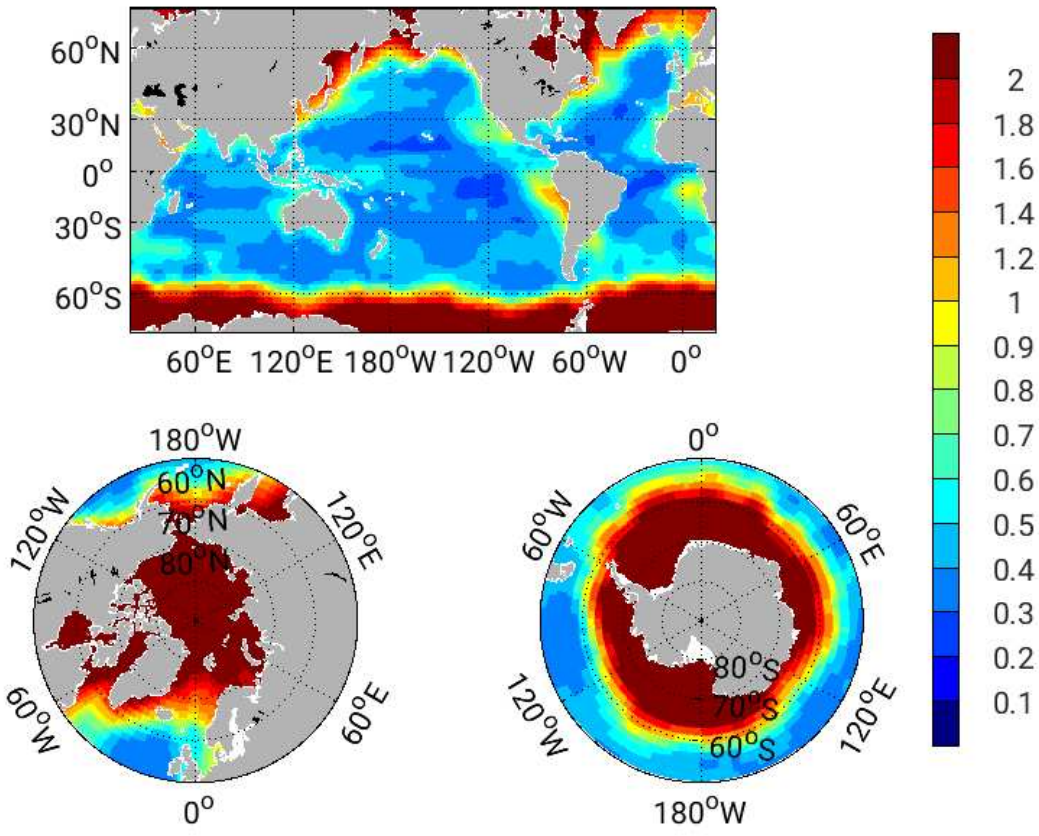

Figure: Prior Uncertainty (K): Time-invariant atemp

atemp

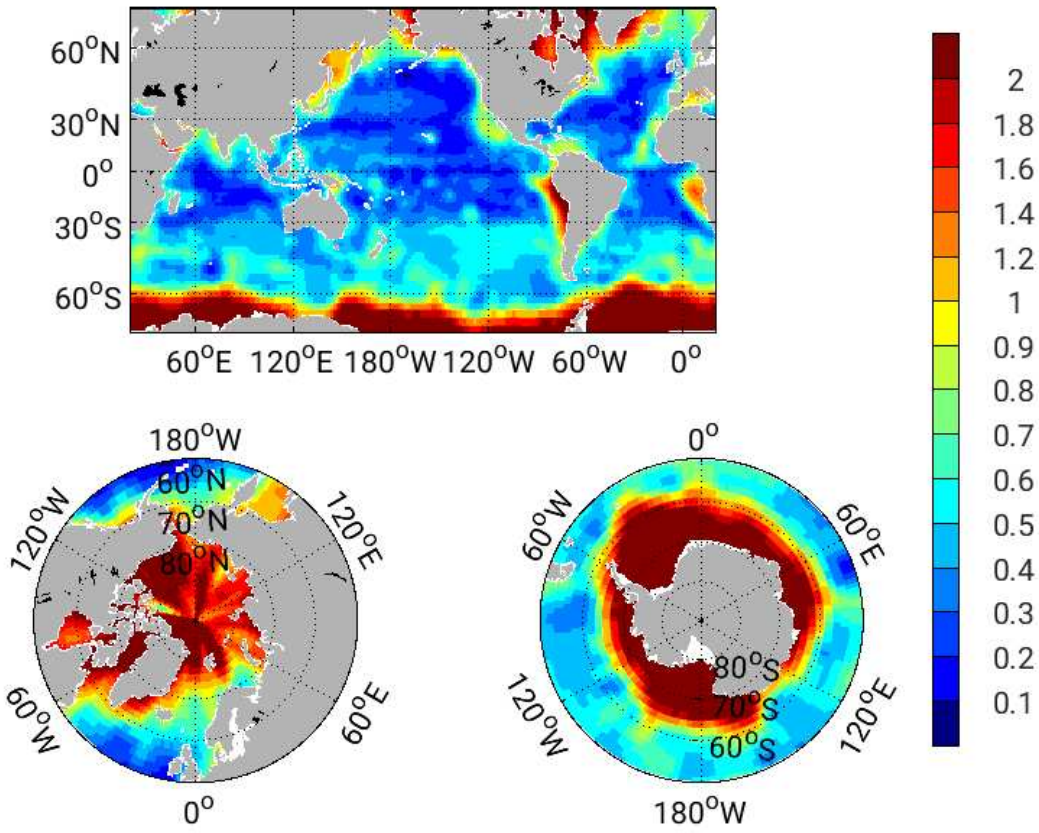

Figure: Prior Uncertainty (K): Time-variant atemp

atemp

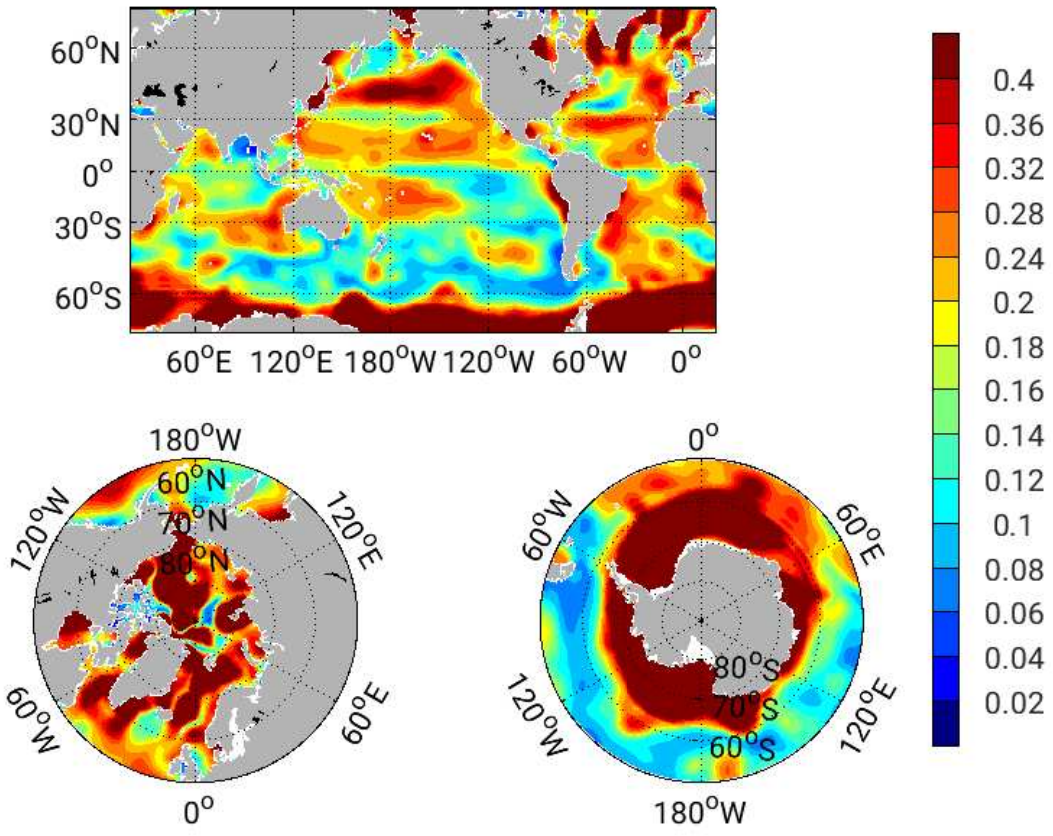

Figure: RMS of Total Adjustment (K): atemp

atemp

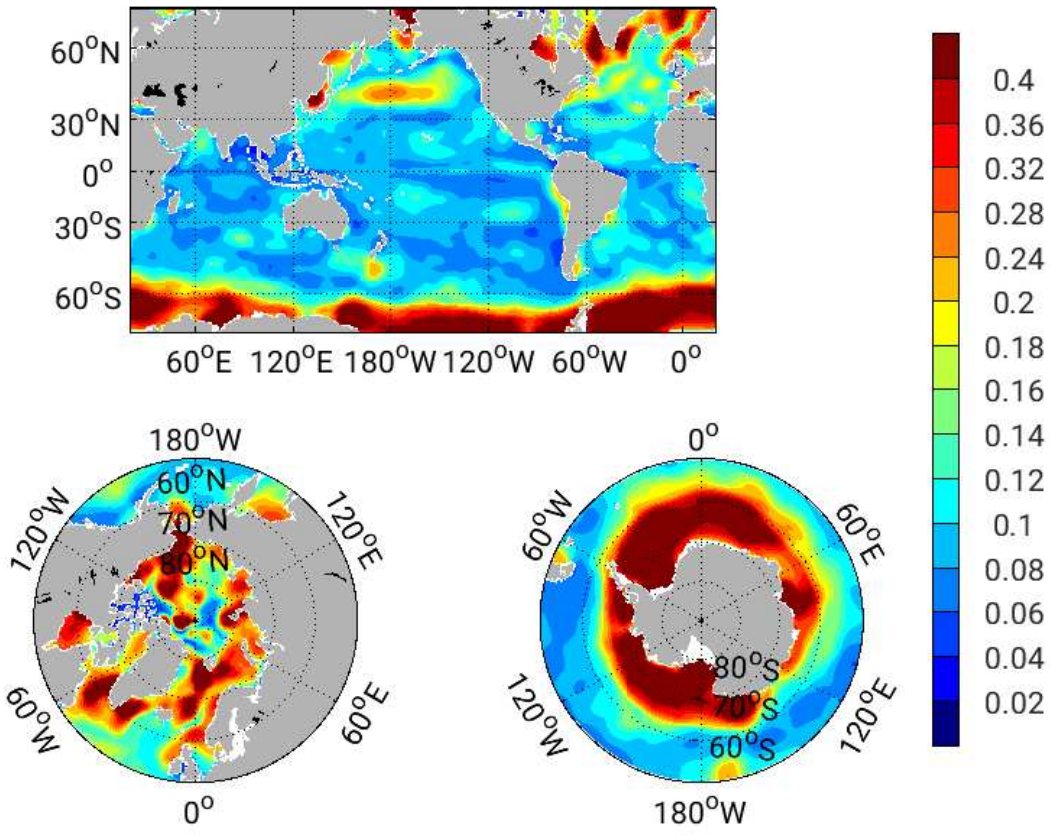

Figure: STD of Total Adjustment (K): atemp

atemp

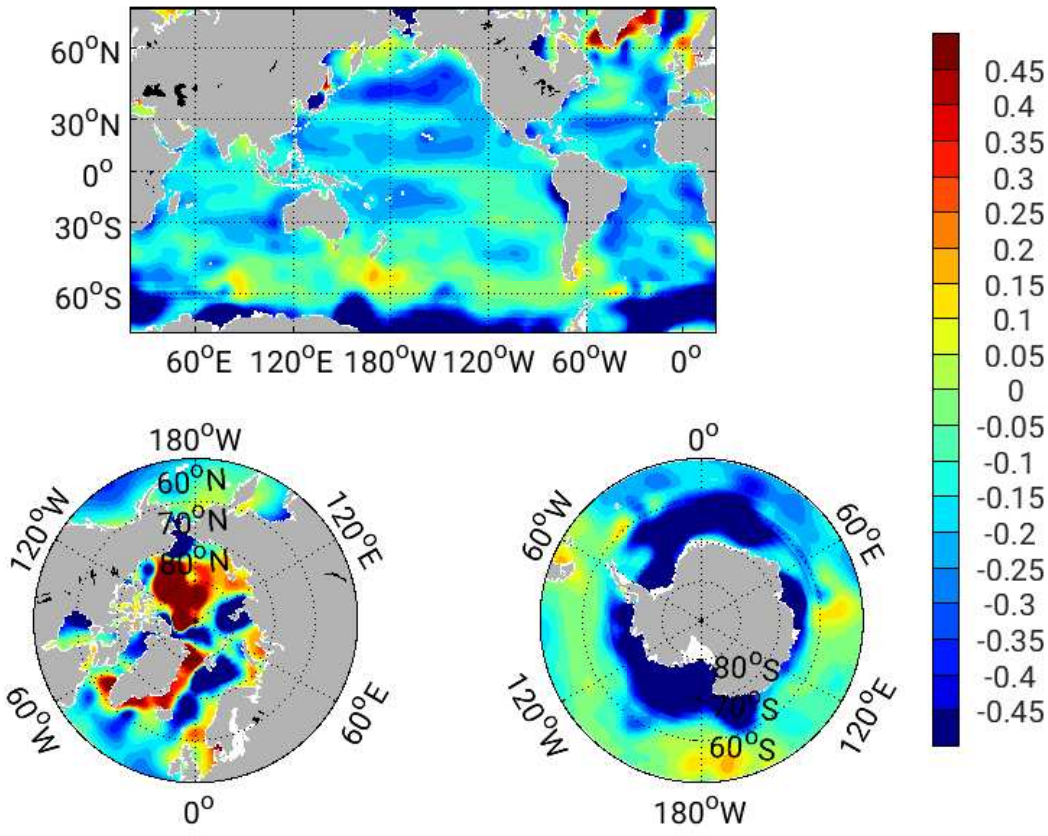

Figure: Mean of Total Adjustment (K): atemp

aqh

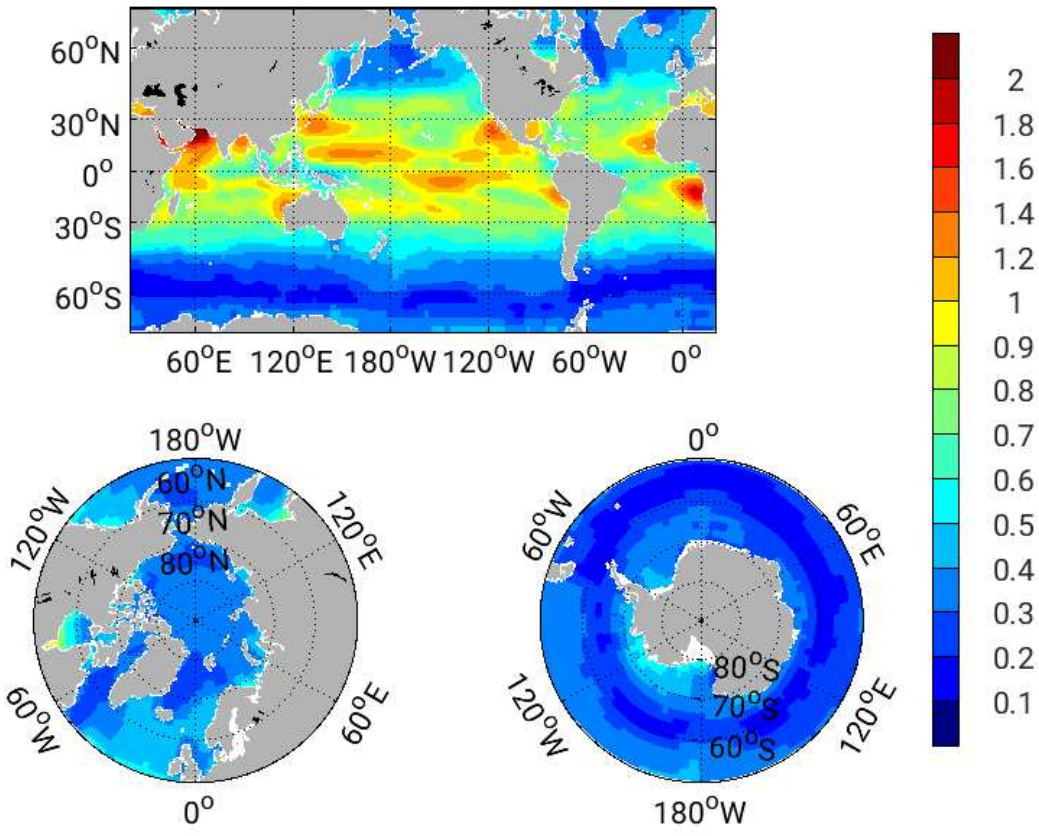

Figure: Prior Uncertainty (g/kg): Time-invariant aqh

aqh

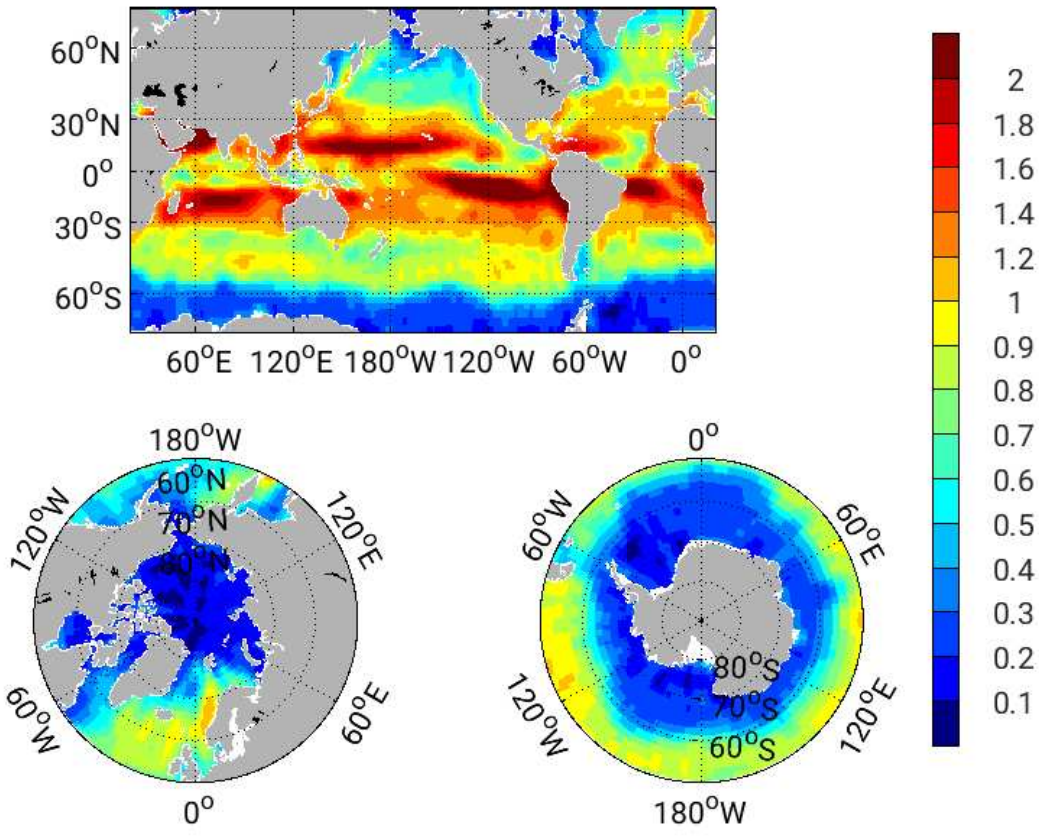

Figure: Prior Uncertainty (g/kg): Time-variant aqh

aqh

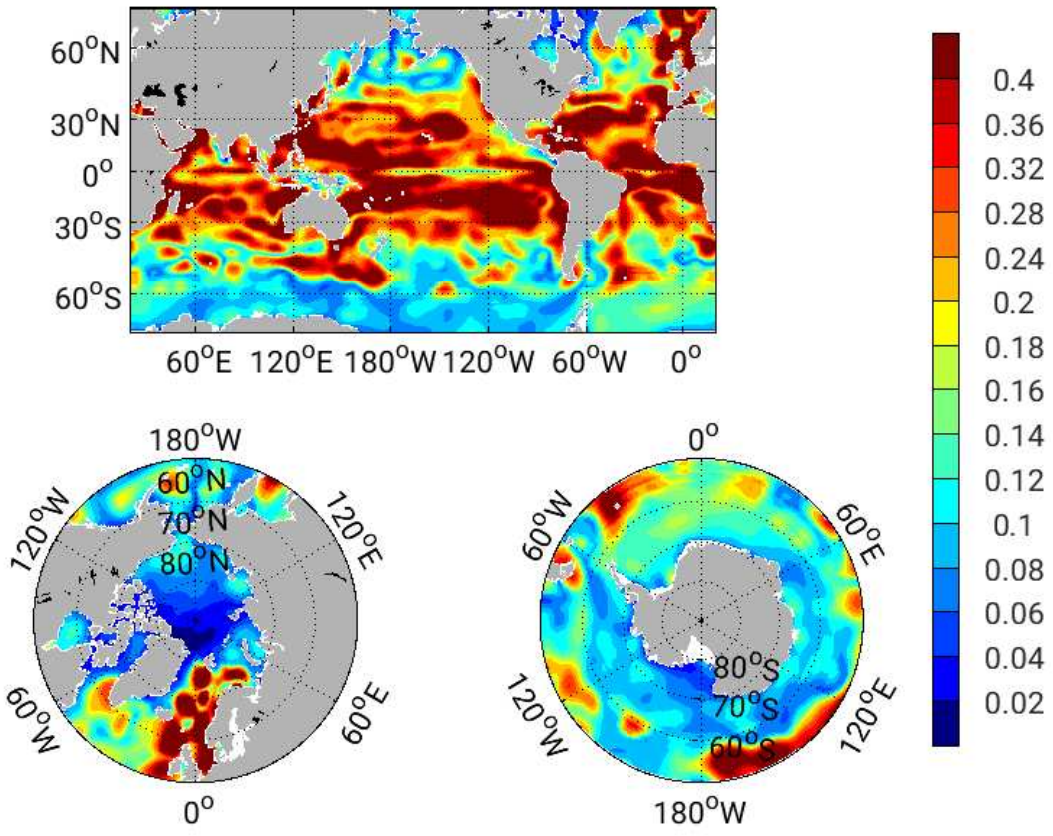

Figure: RMS of Total Adjustment (g/kg): aqh

aqh

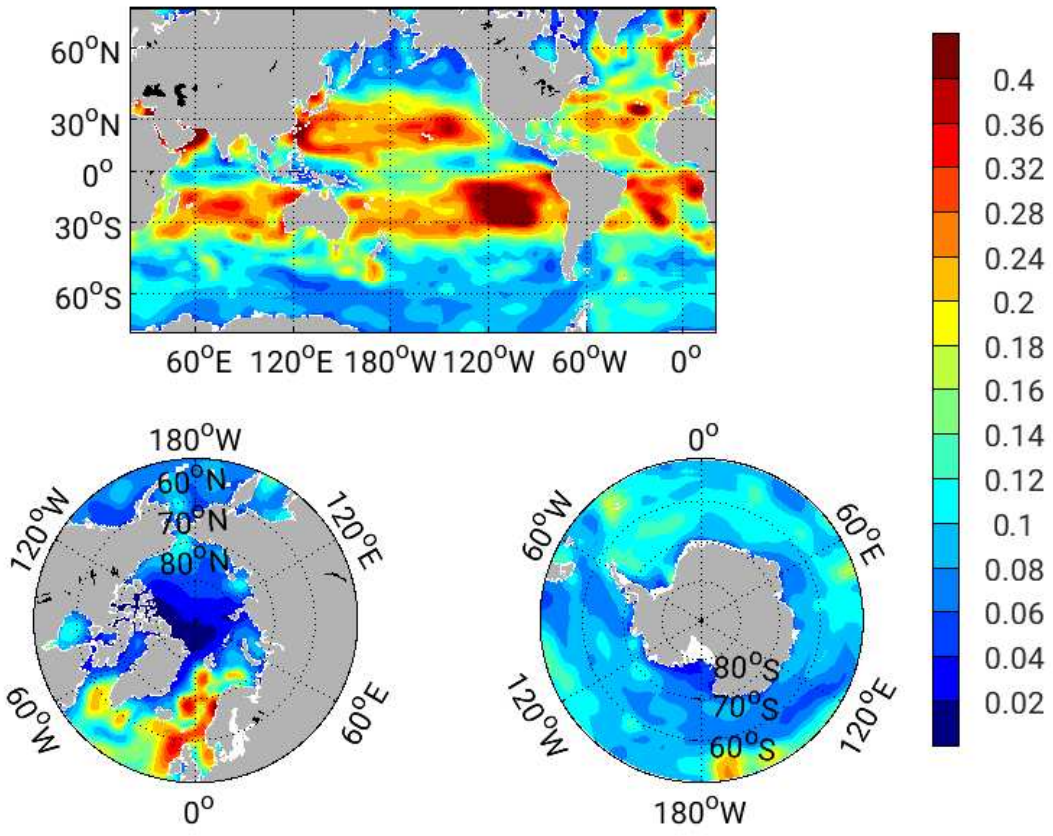

Figure: STD of Total Adjustment (g/kg): aqh

aqh

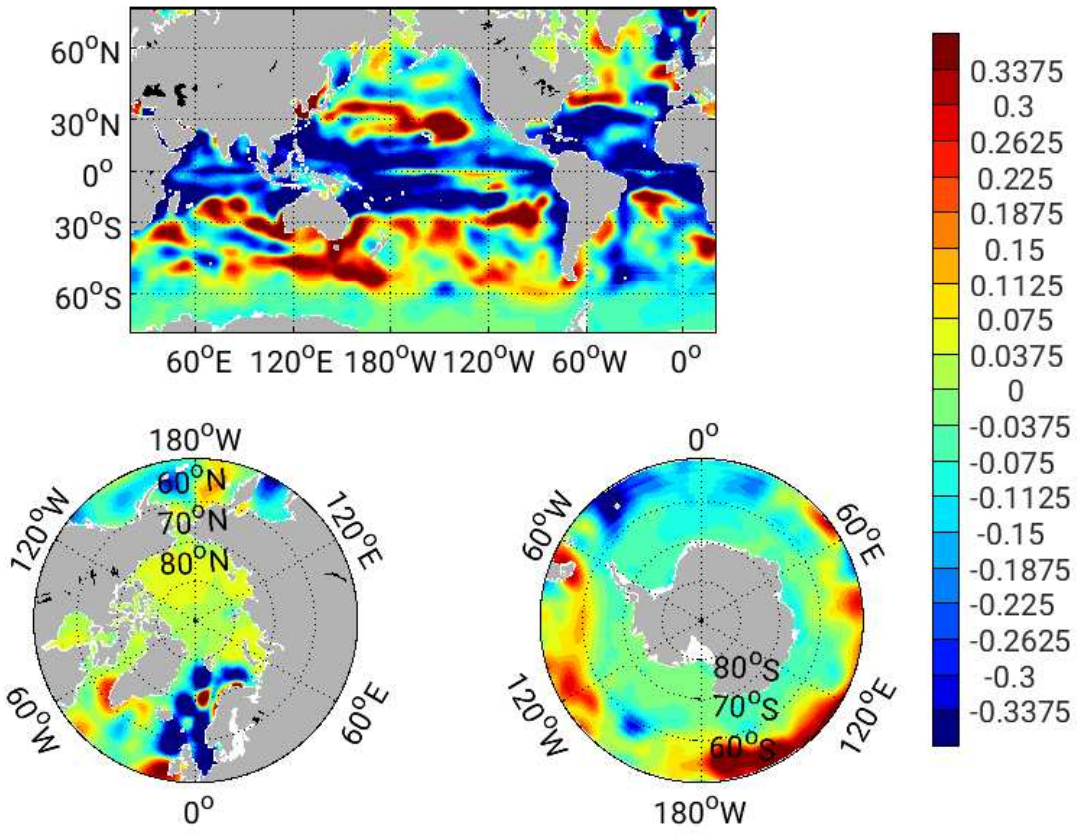

Figure: Mean of Total Adjustment (g/kg): aqh

tauu

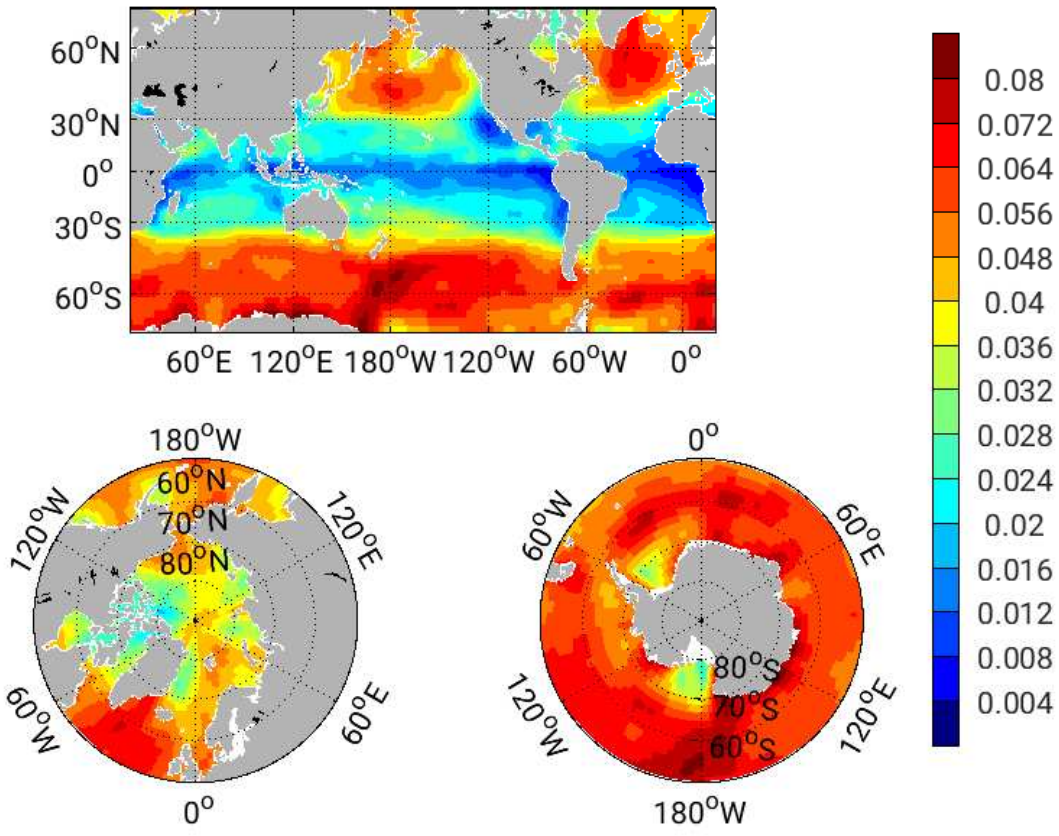

Figure: Prior Uncertainty (N/m2): Time-invariant tauu

tauu

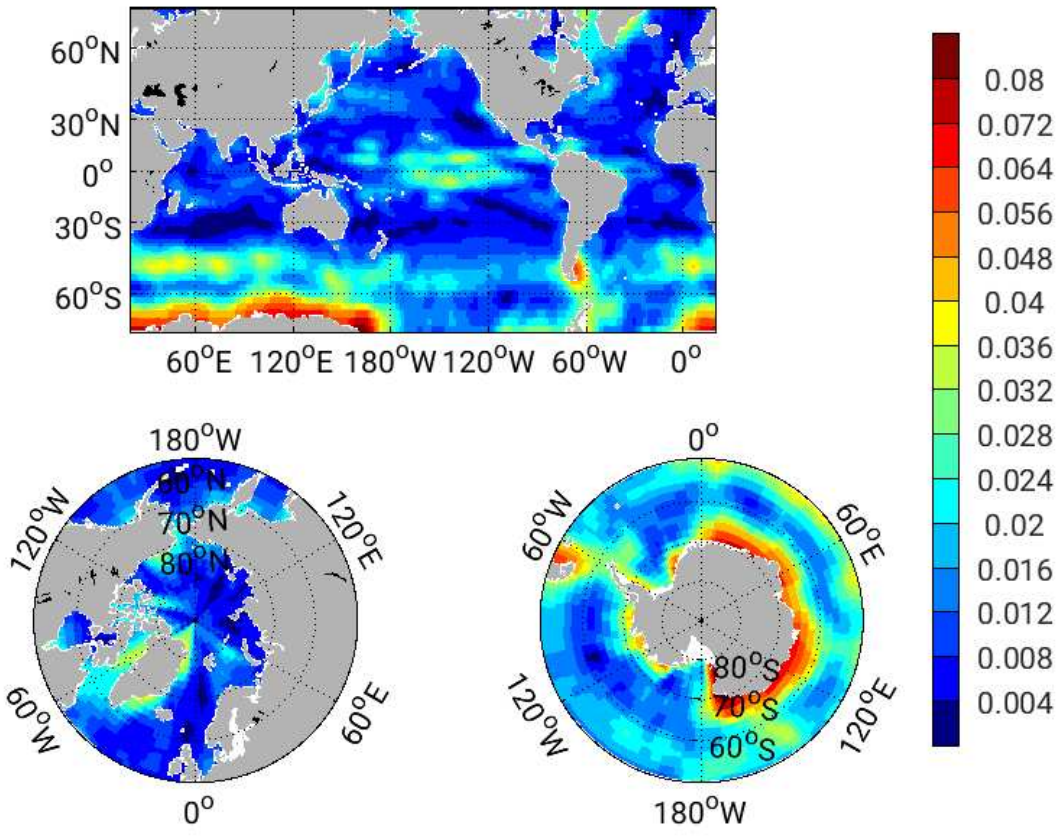

Figure: Prior Uncertainty (N/m2): Time-variant tauu

tauu

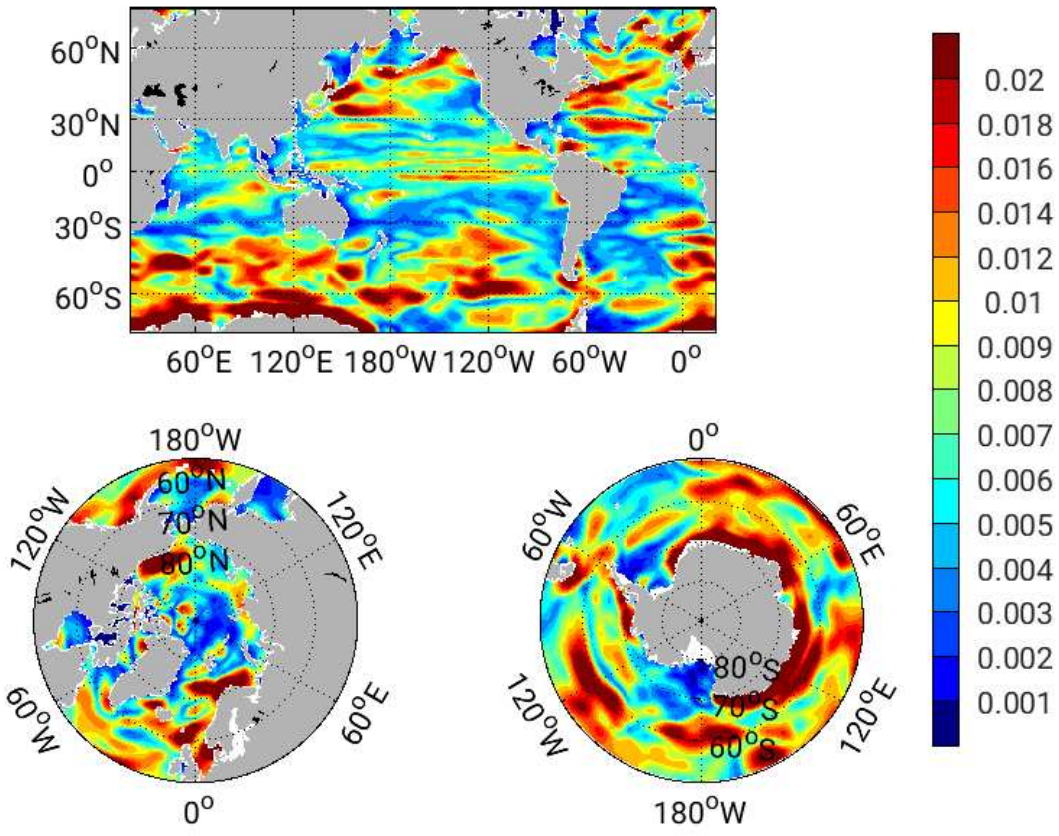

Figure: RMS of Total Adjustment (N/m2): tauu

tauu

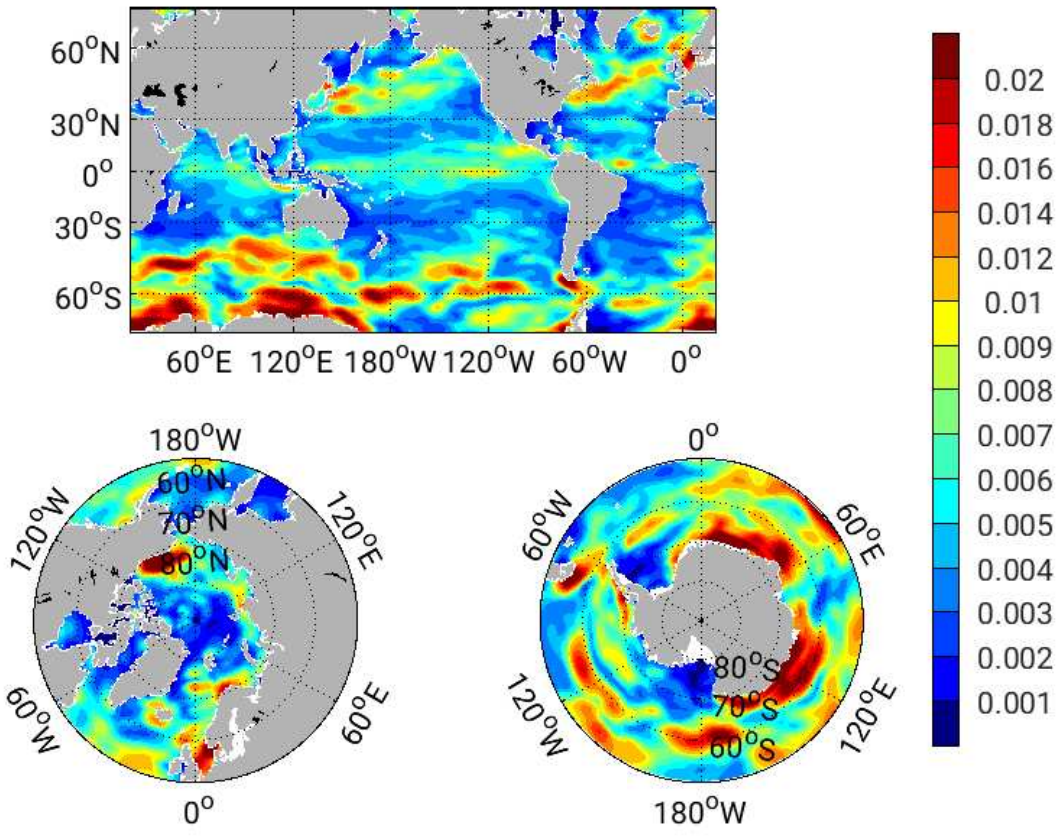

Figure: STD of Total Adjustment (N/m2): tauu

tauu

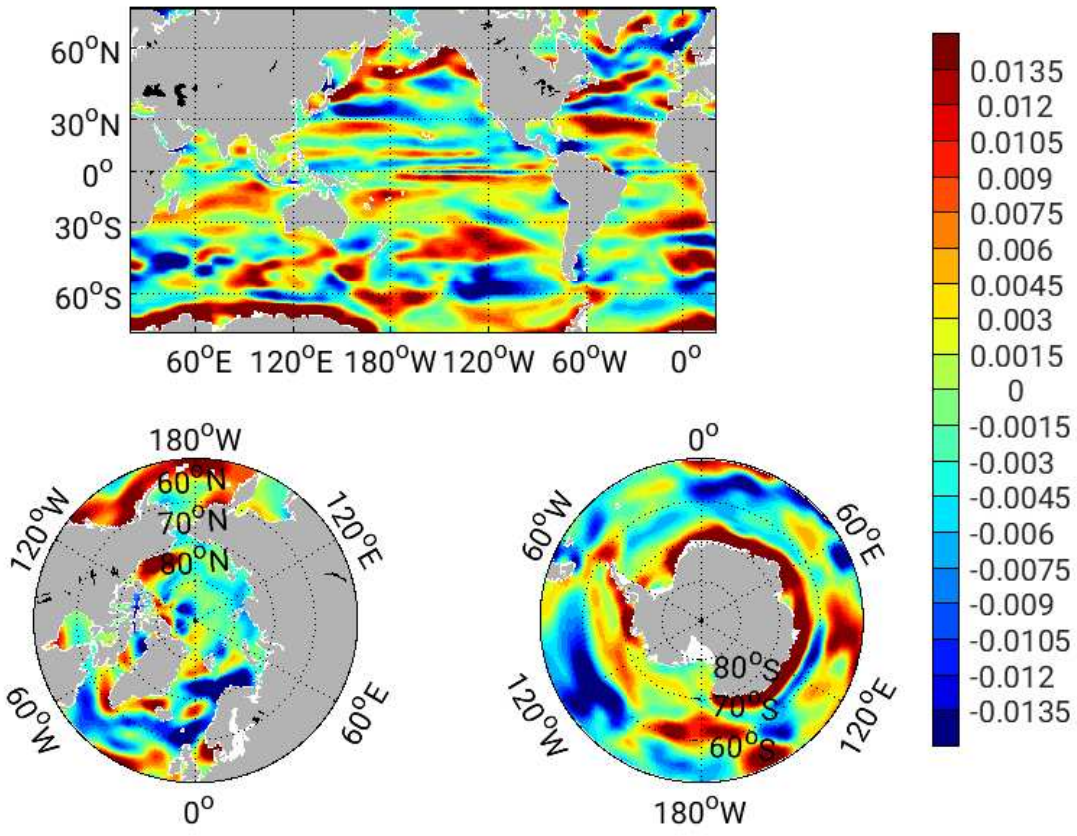

Figure: Mean of Total Adjustment (N/m2): tauu

tauv

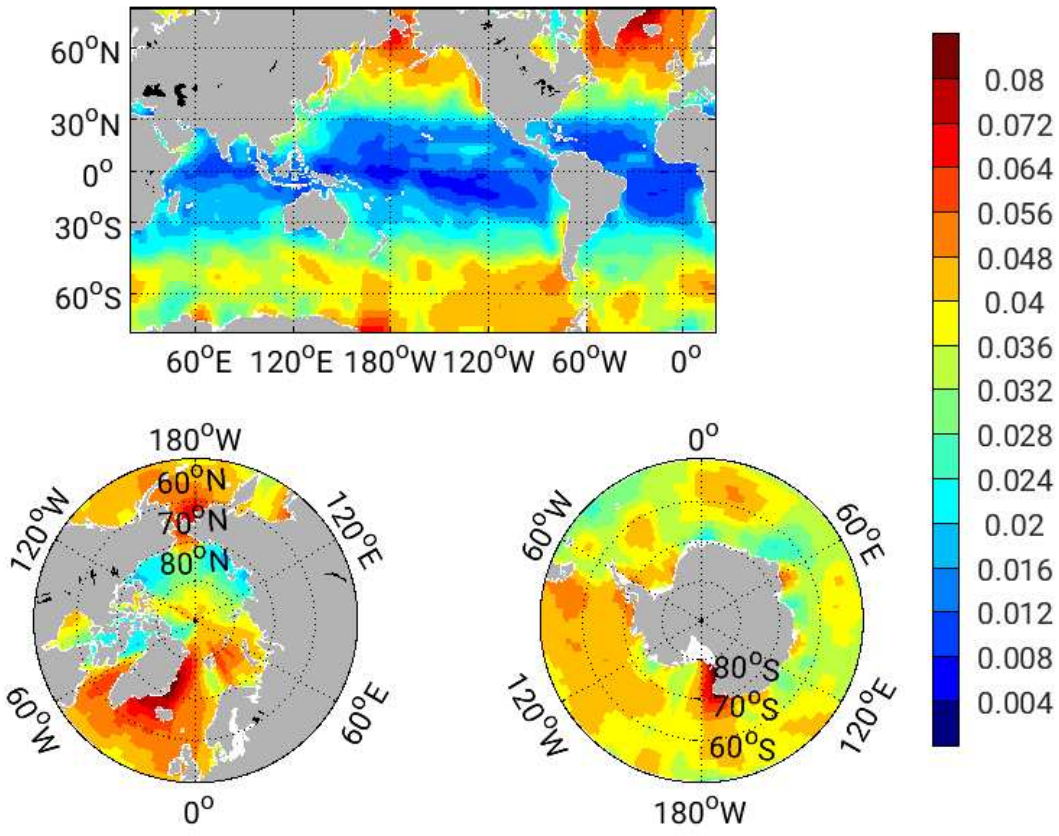

Figure: Prior Uncertainty (N/m2): Time-invariant tauv

tauv

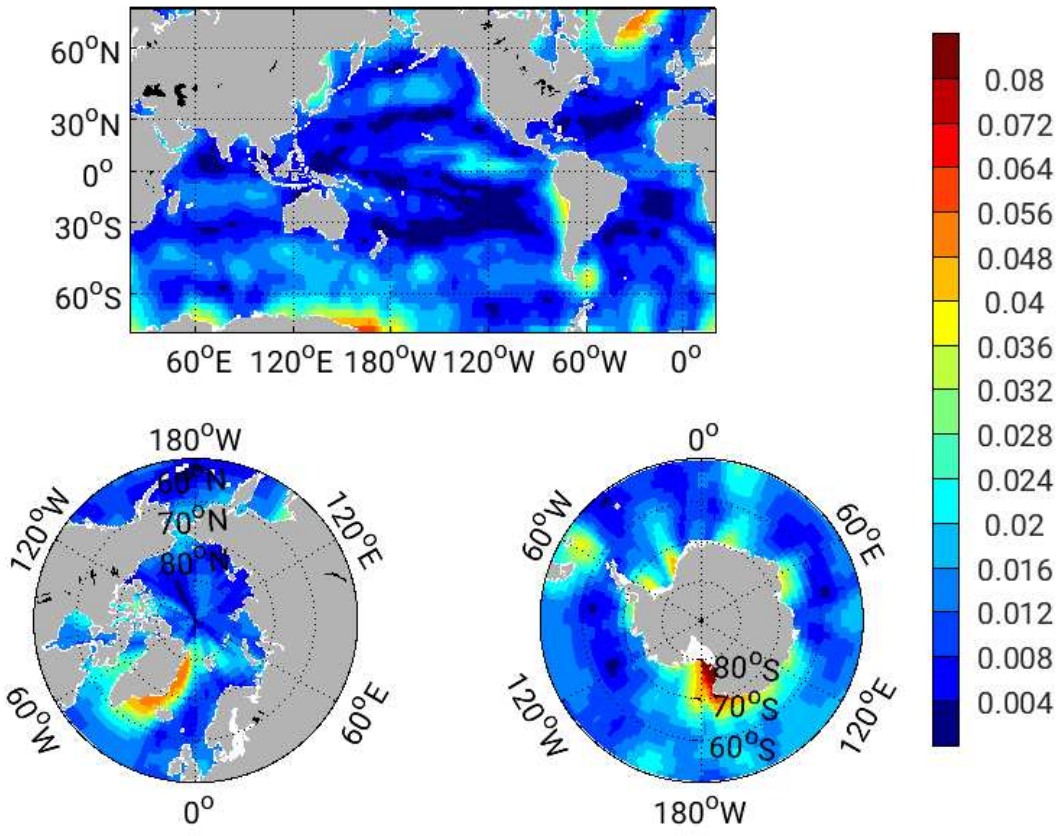

Figure: Prior Uncertainty (N/m2): Time-variant tauv

tauv

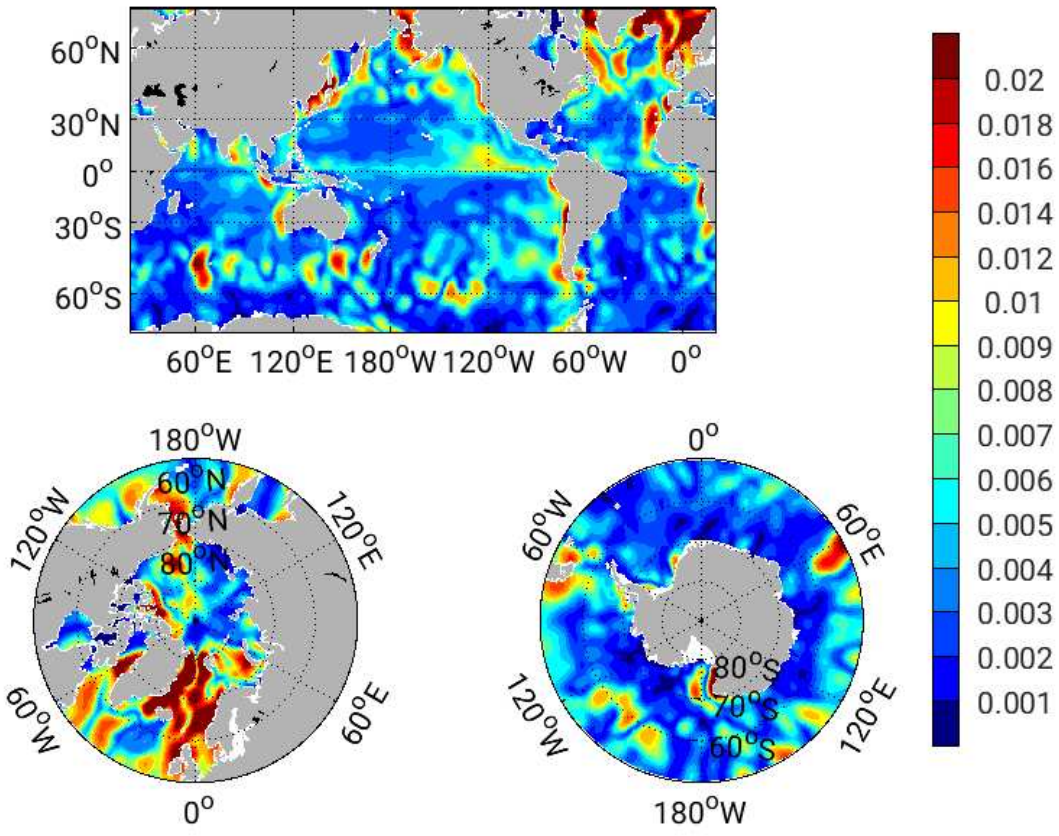

Figure: RMS of Total Adjustment (N/m2): tauv

tauv

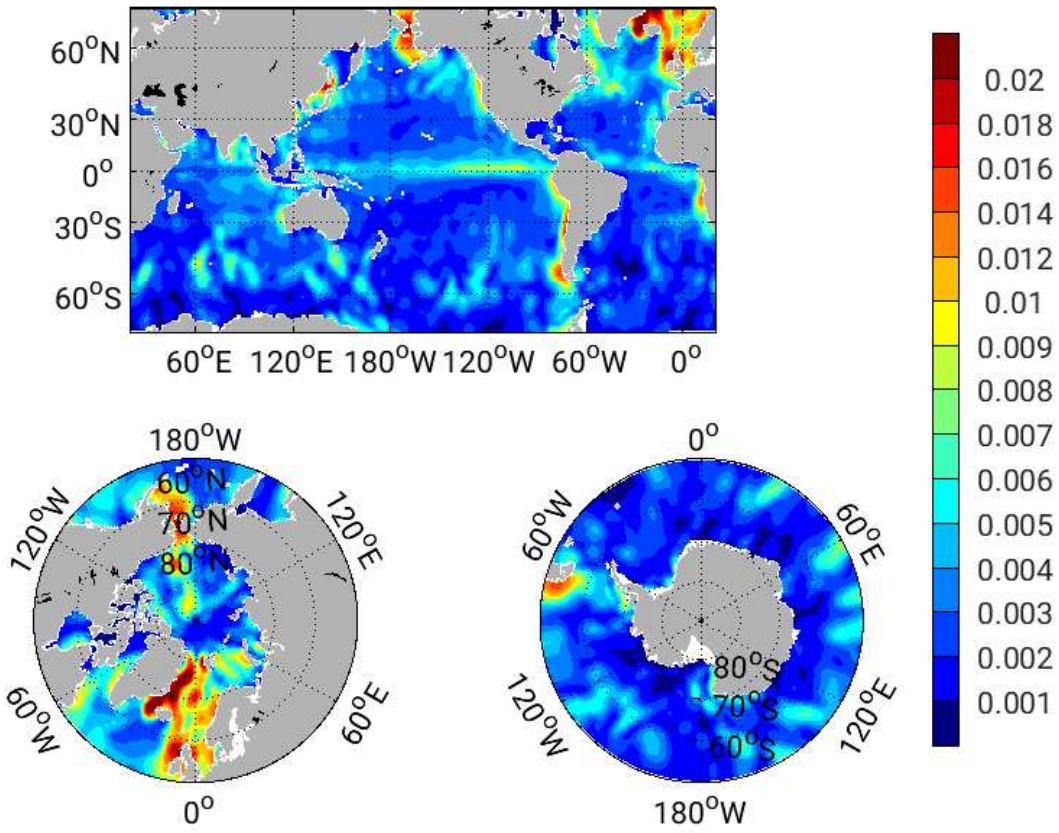

Figure: STD of Total Adjustment (N/m2): tauv

tauv

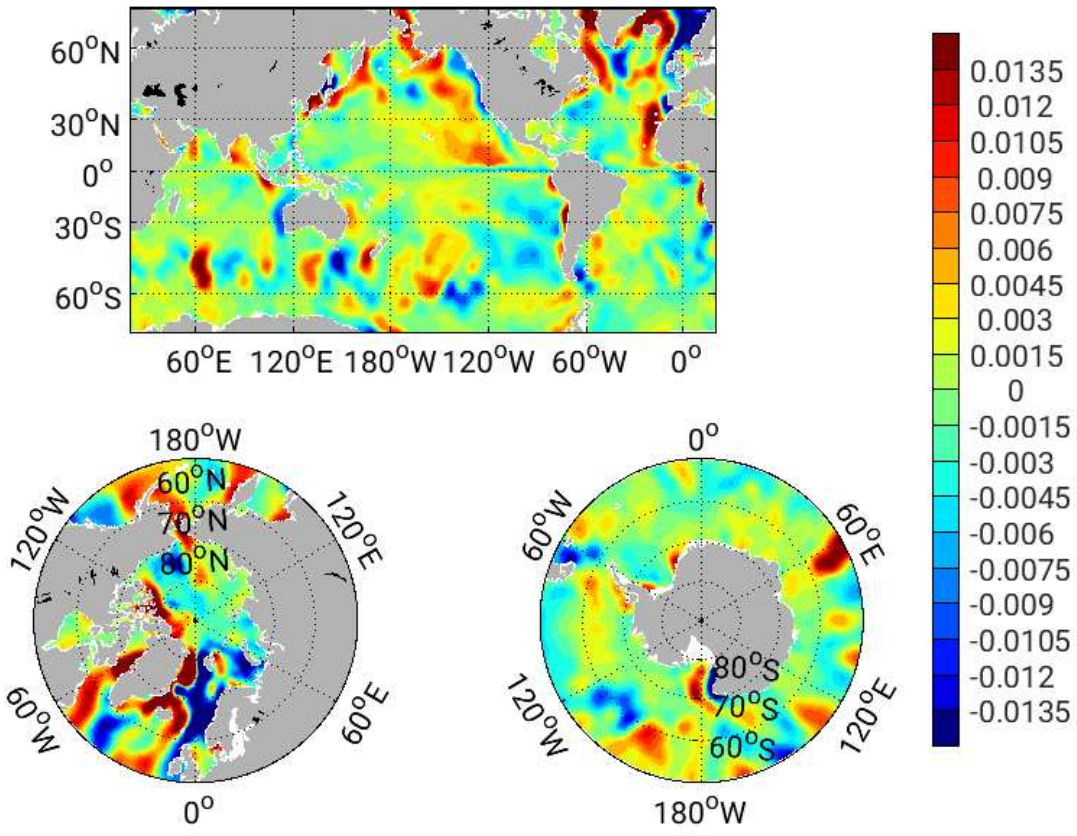

Figure: Mean of Total Adjustment (N/m2): tauv

lwdown

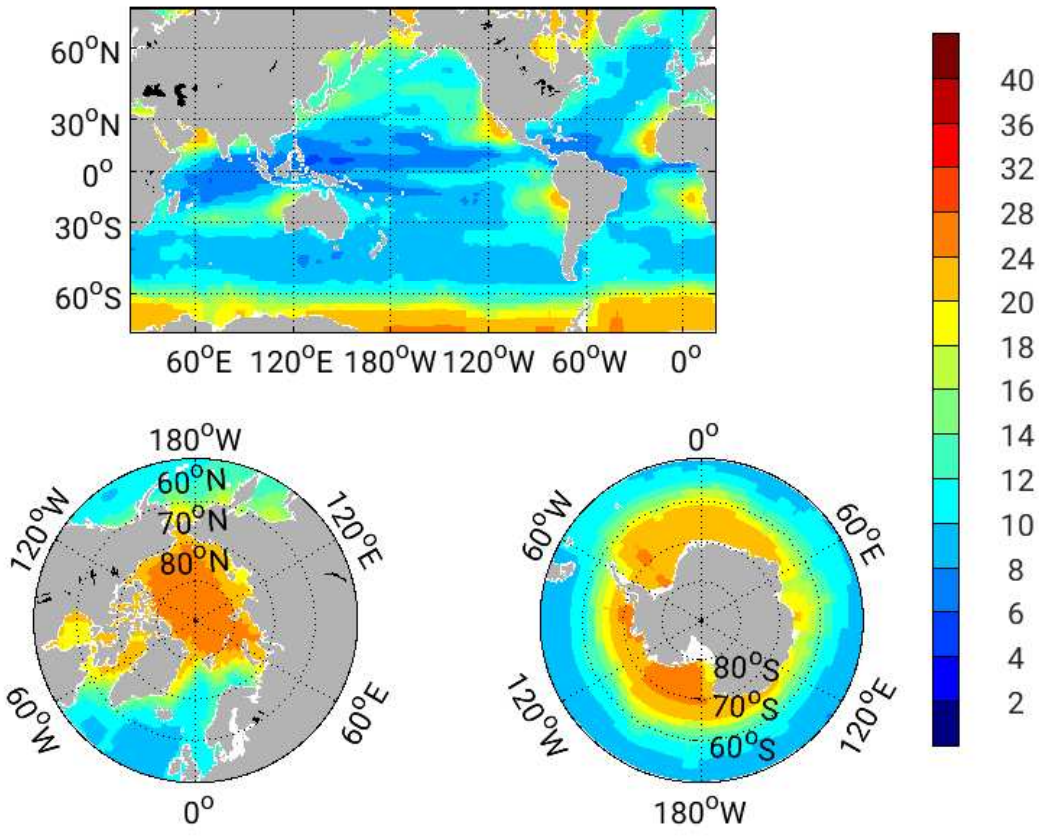

Figure: Prior Uncertainty (W/m2): Time-invariant lwdown

lwdown

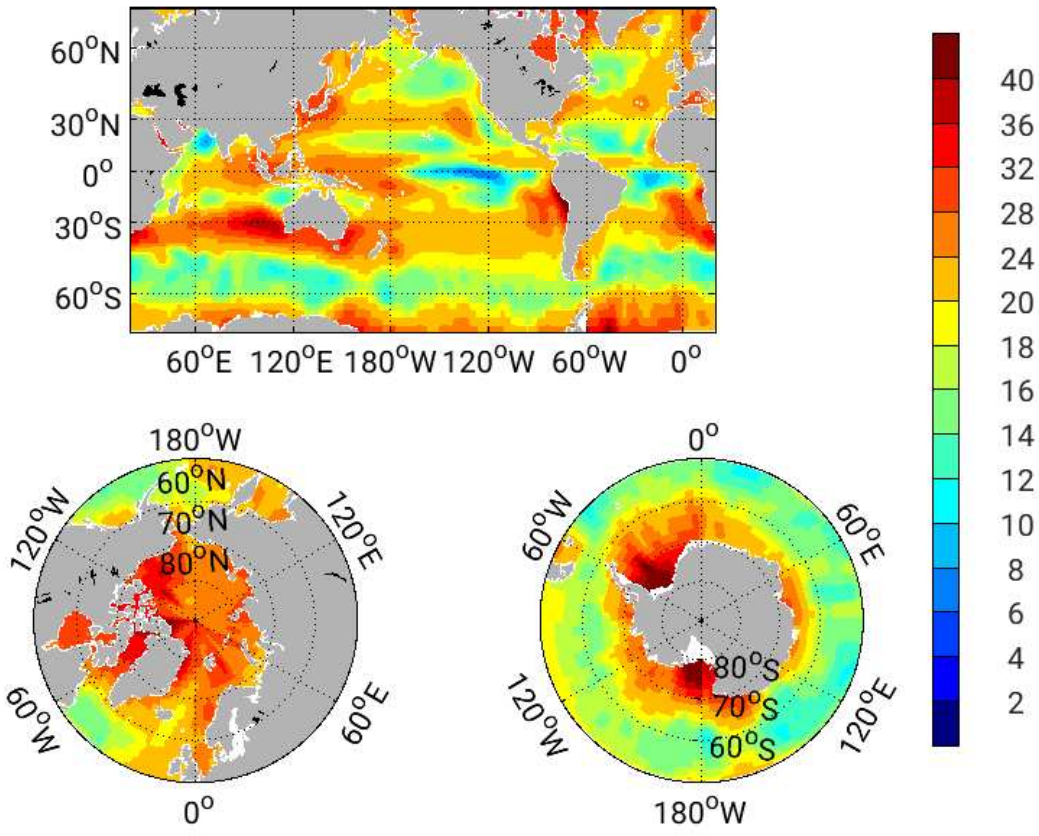

Figure: Prior Uncertainty (W/m2): Time-variant lwdown

lwdown

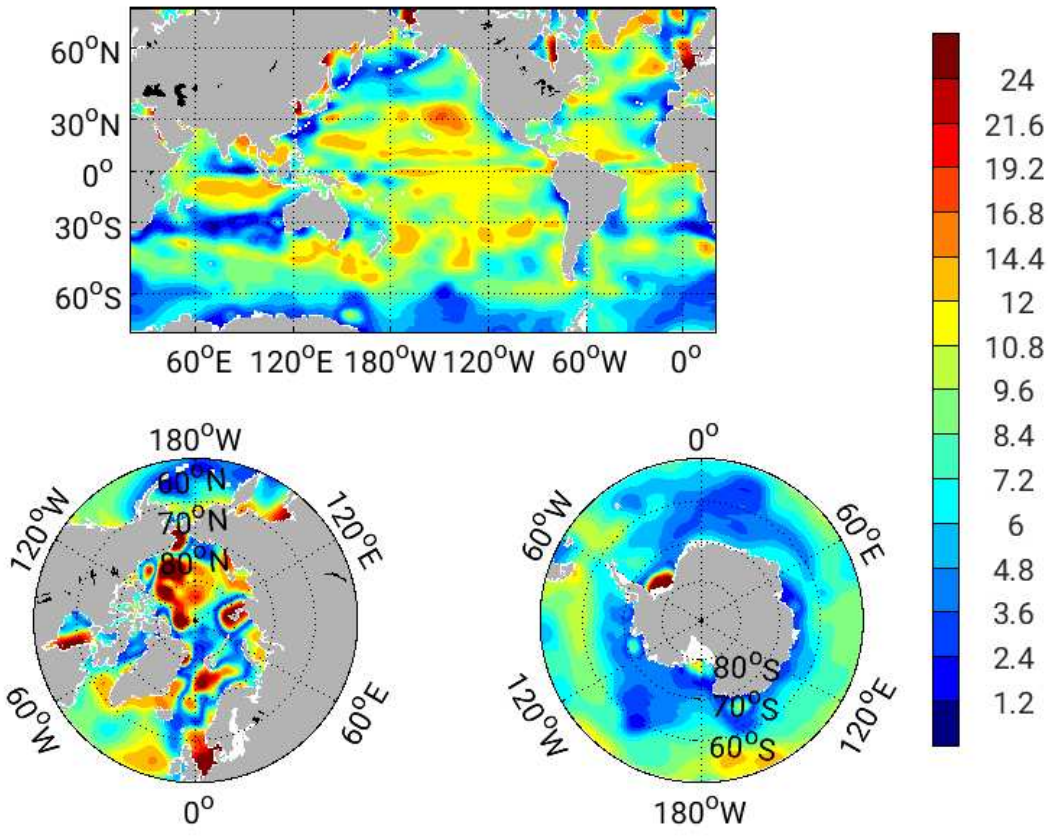

Figure: RMS of Total Adjustment (W/m2): lwdown

lwdown

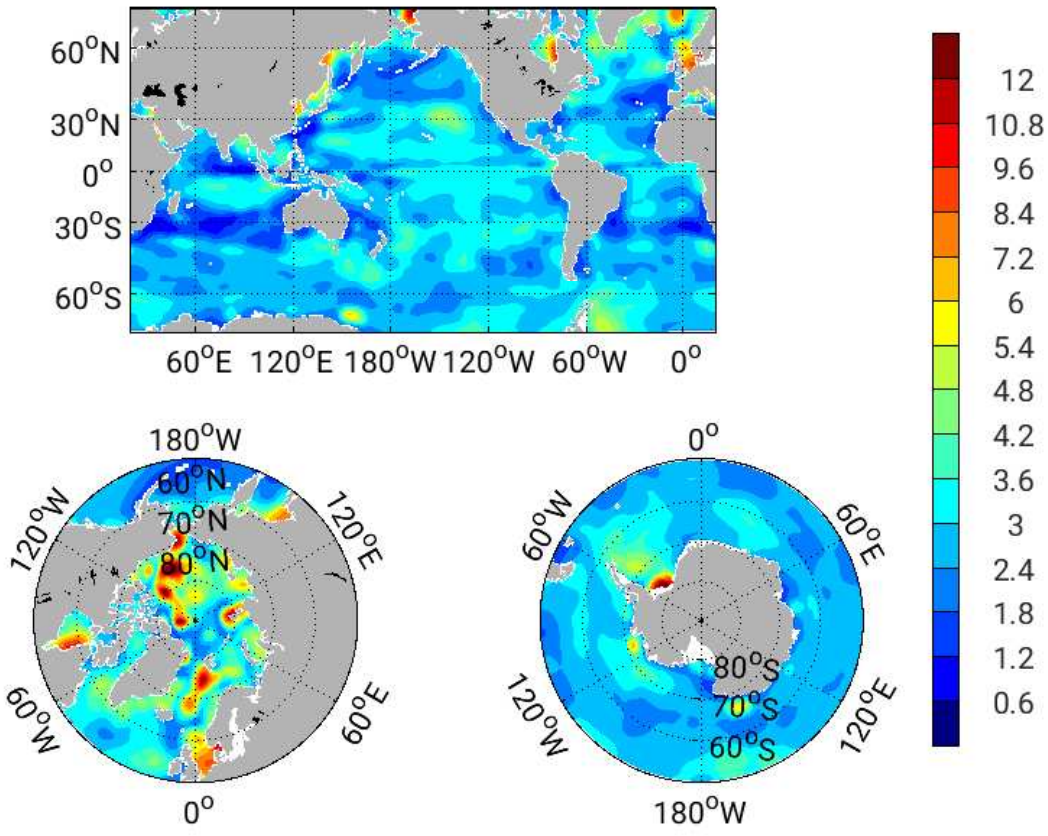

Figure: STD of Total Adjustment (W/m2): lwdown

lwdown

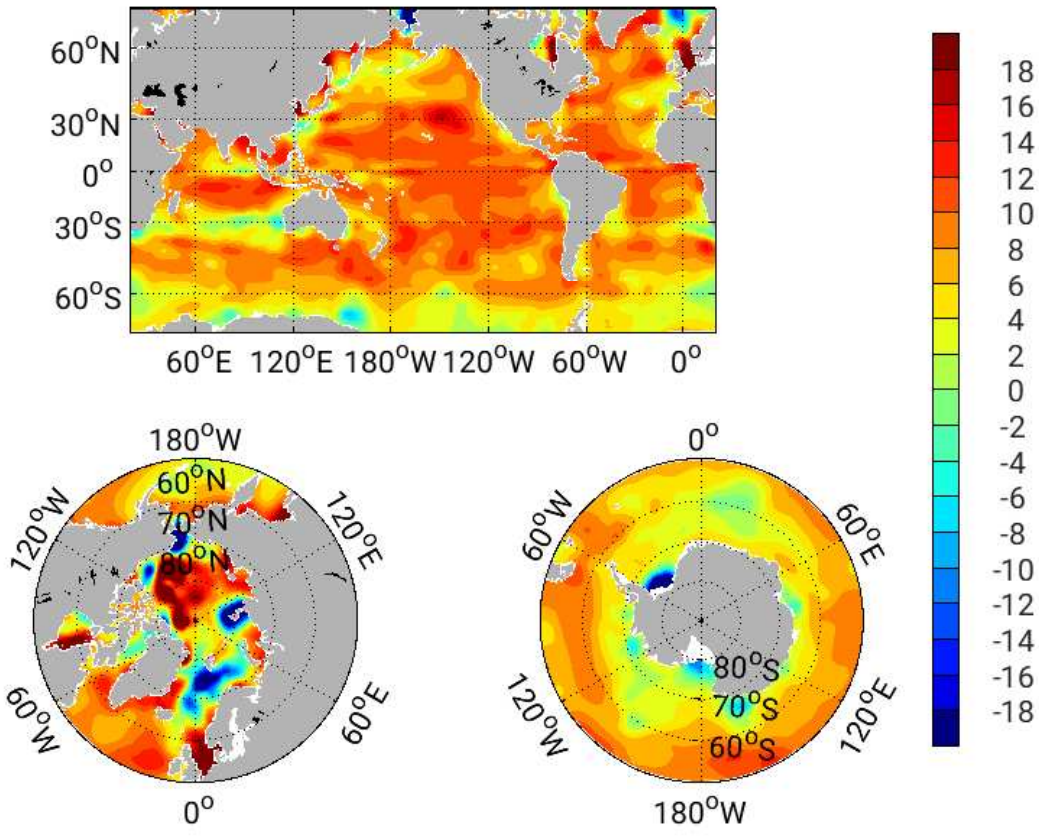

Figure: Mean of Total Adjustment (W/m2): lwdown

swdown

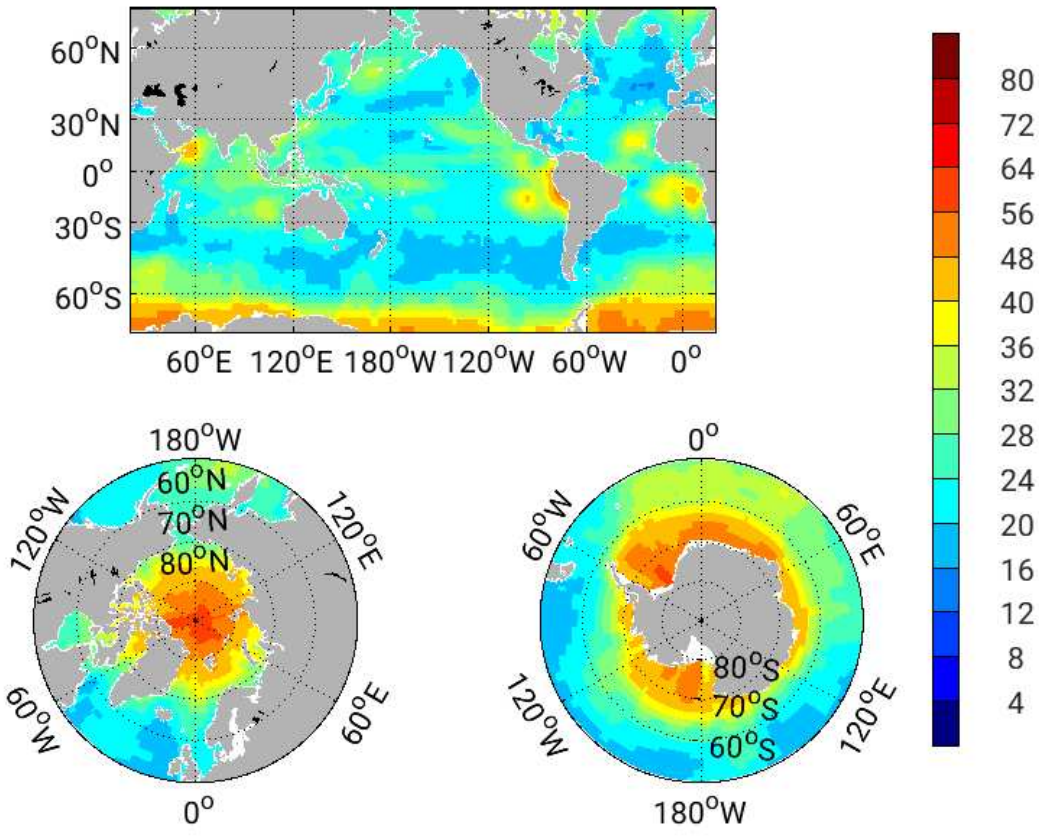

Figure: Prior Uncertainty (W/m2): Time-invariant swdown

swdown

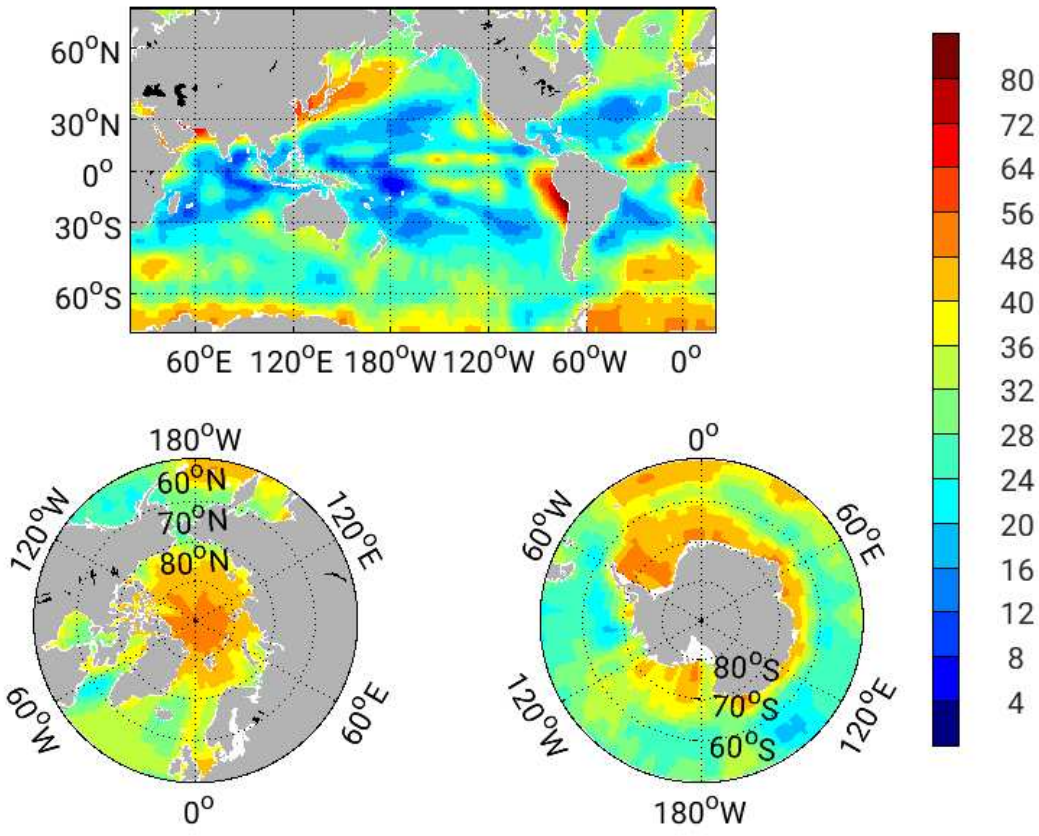

Figure: Prior Uncertainty (W/m2): Time-variant swdown

swdown

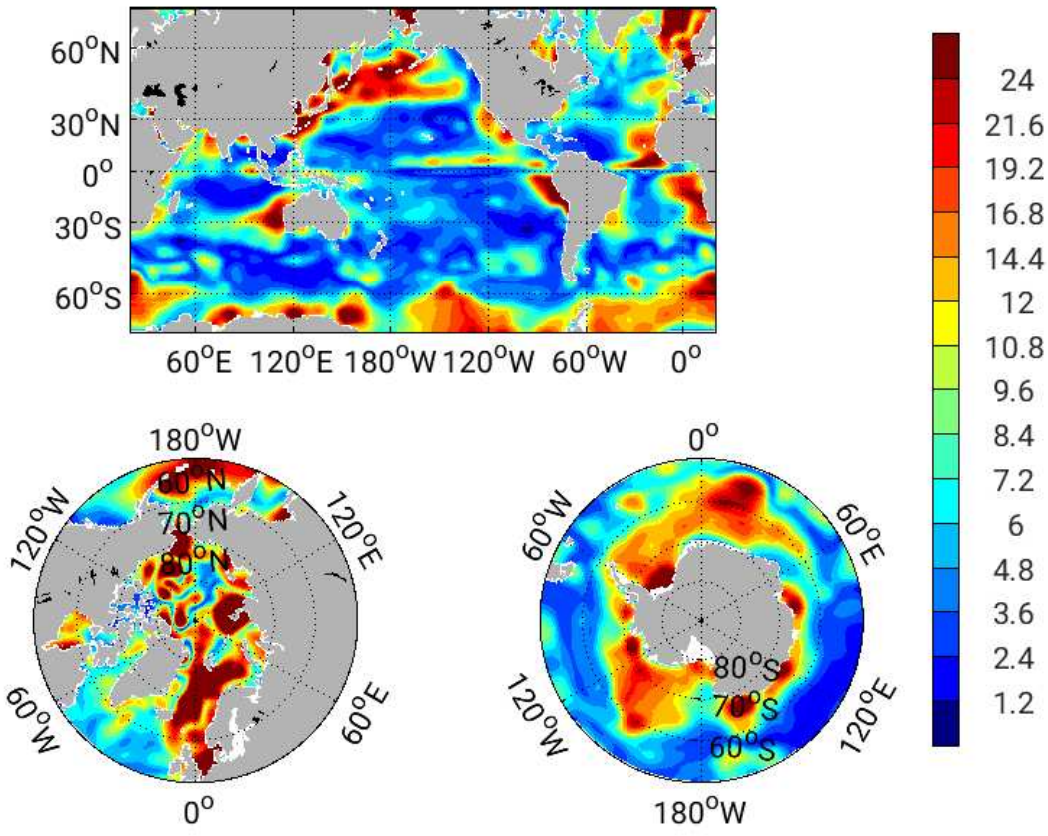

Figure: RMS of Total Adjustment (W/m2): swdown

swdown

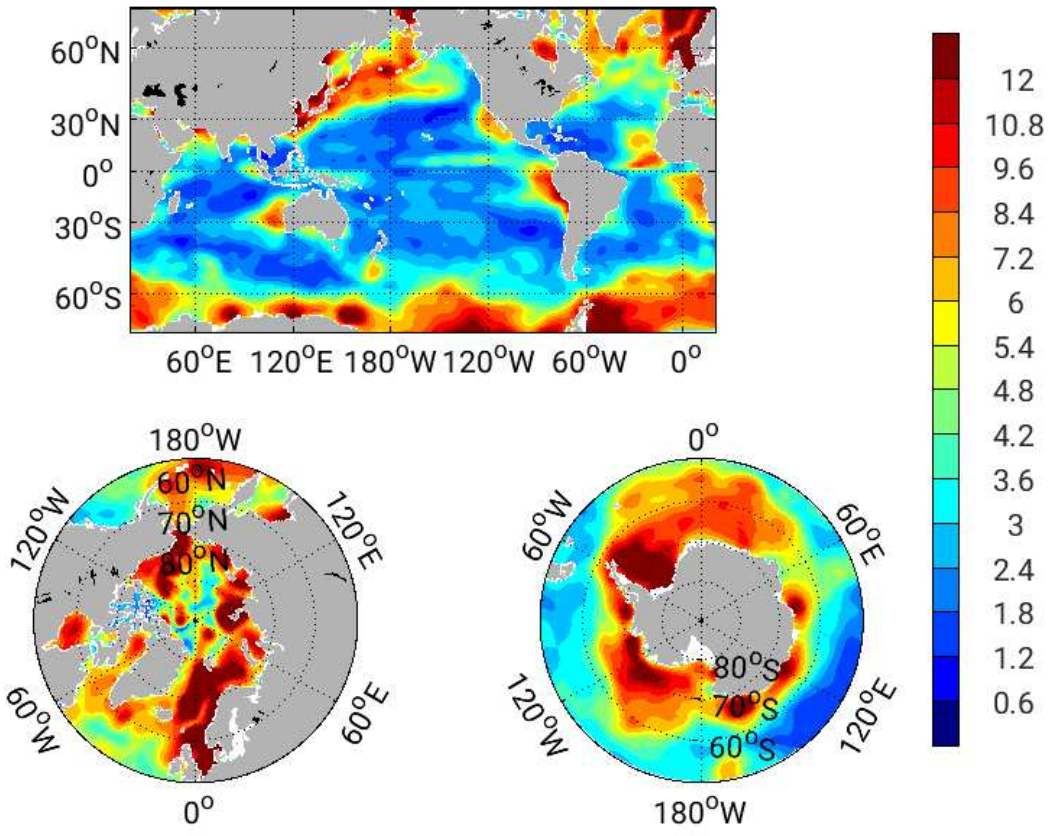

Figure: STD of Total Adjustment (W/m2): swdown

swdown

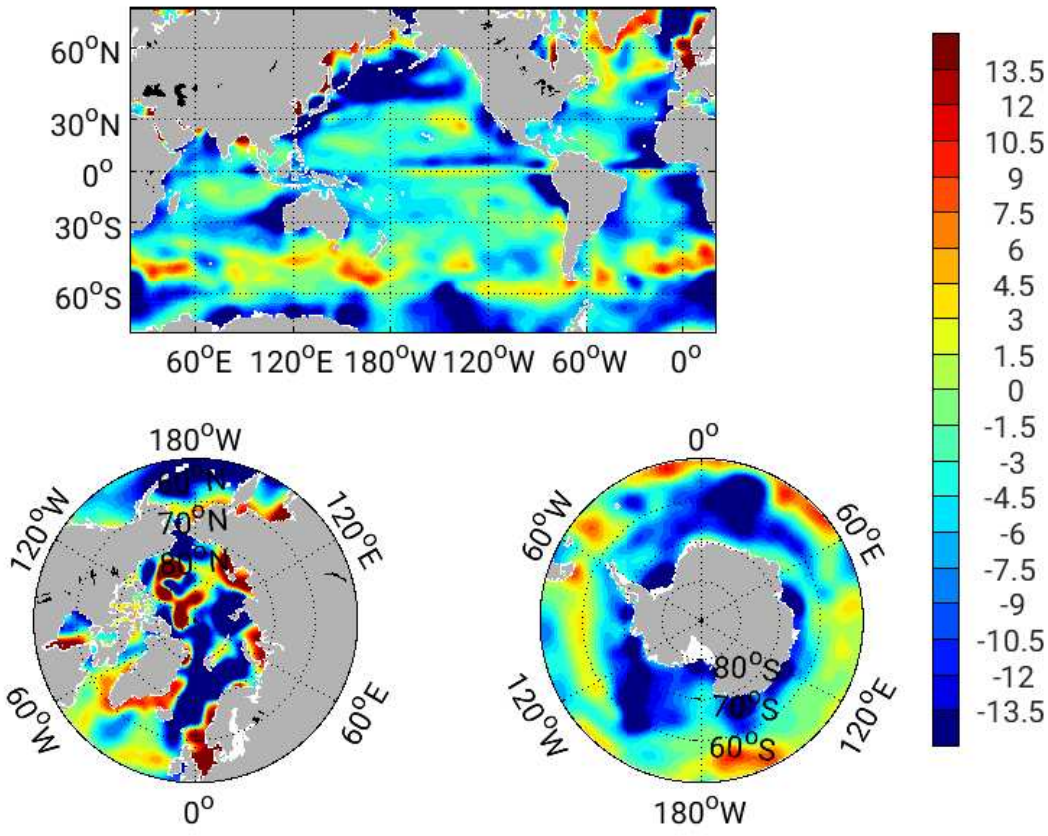

Figure: Mean of Total Adjustment (W/m2): swdown

precip

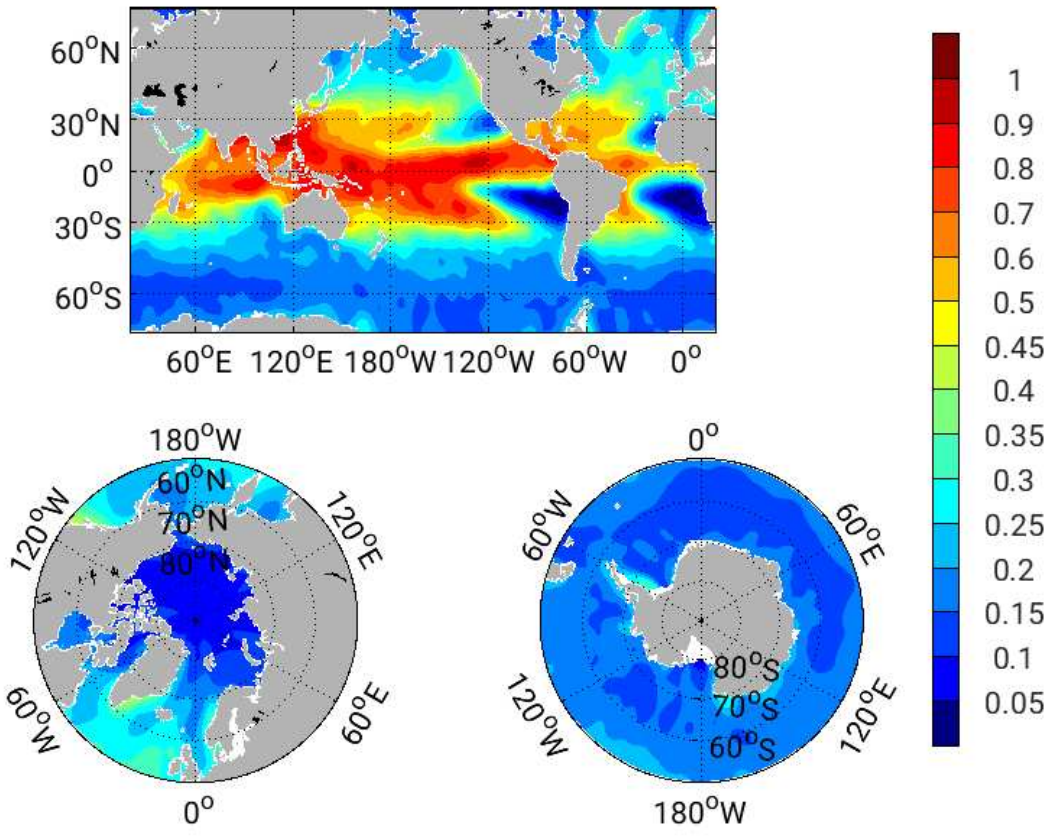

Figure: Prior Uncertainty (m/yr): Time-invariant precip

precip

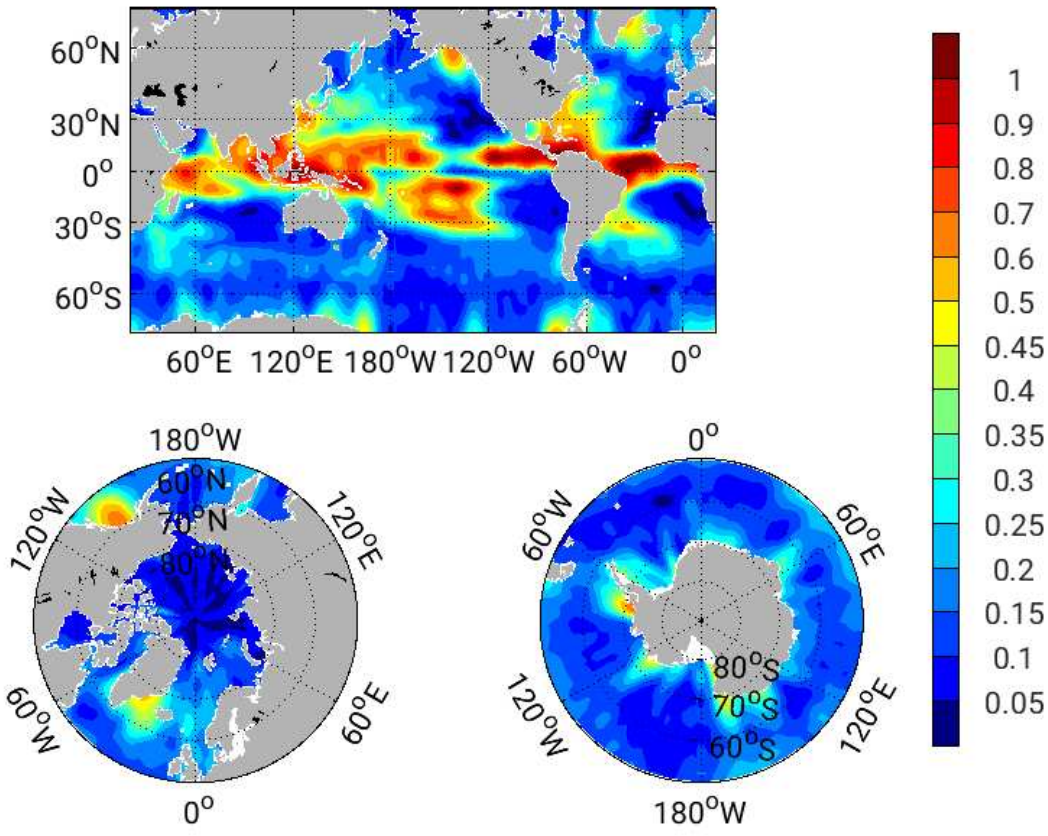

Figure: Prior Uncertainty (m/yr): Time-variant precip

precip

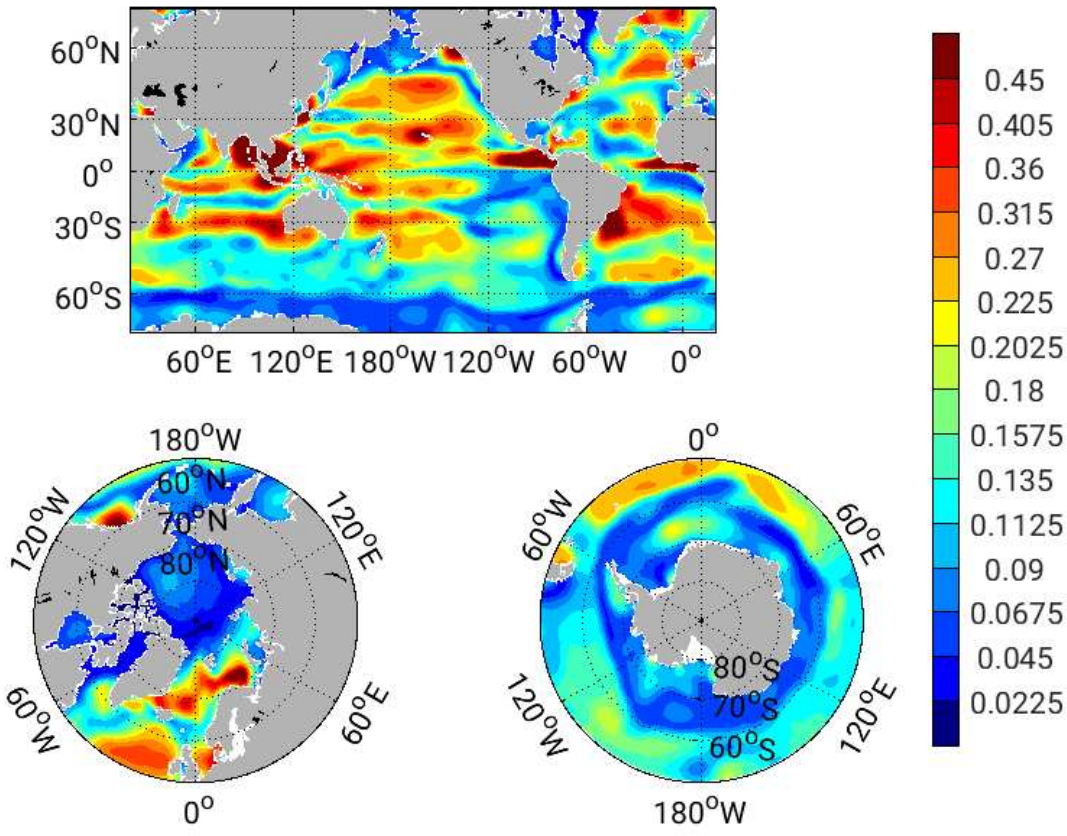

Figure: RMS of Total Adjustment (m/yr): precip

precip

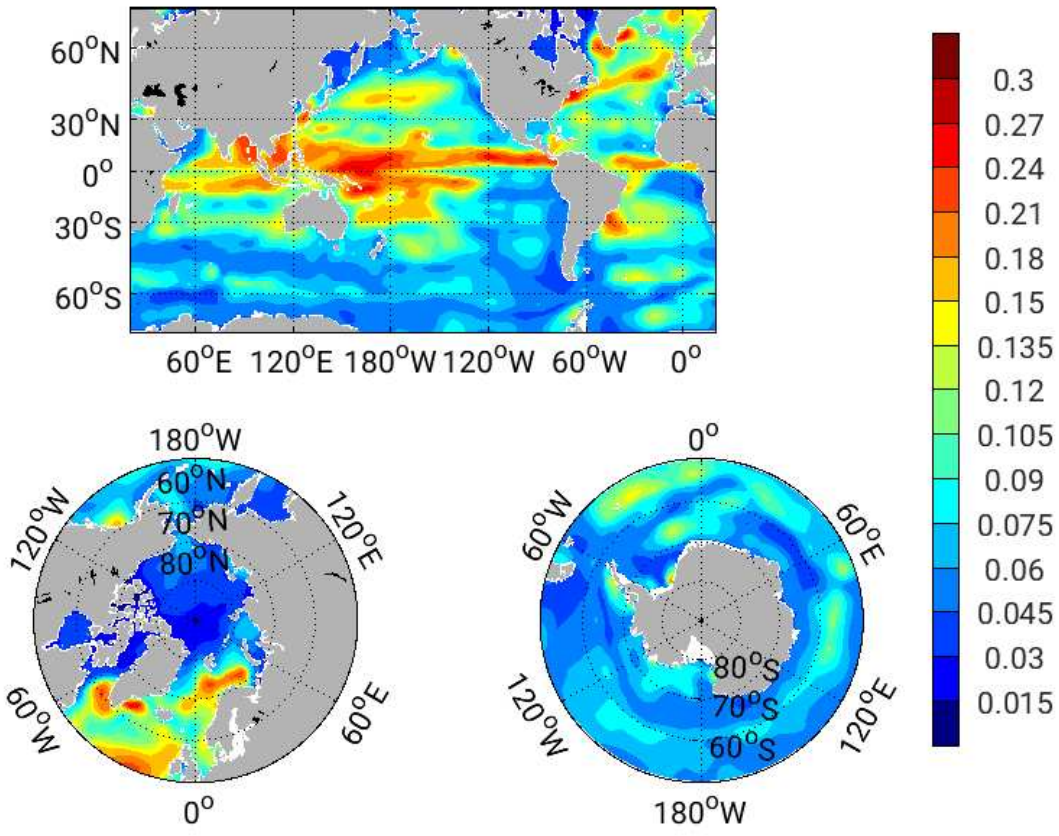

Figure: STD of Total Adjustment (m/yr): precip

precip

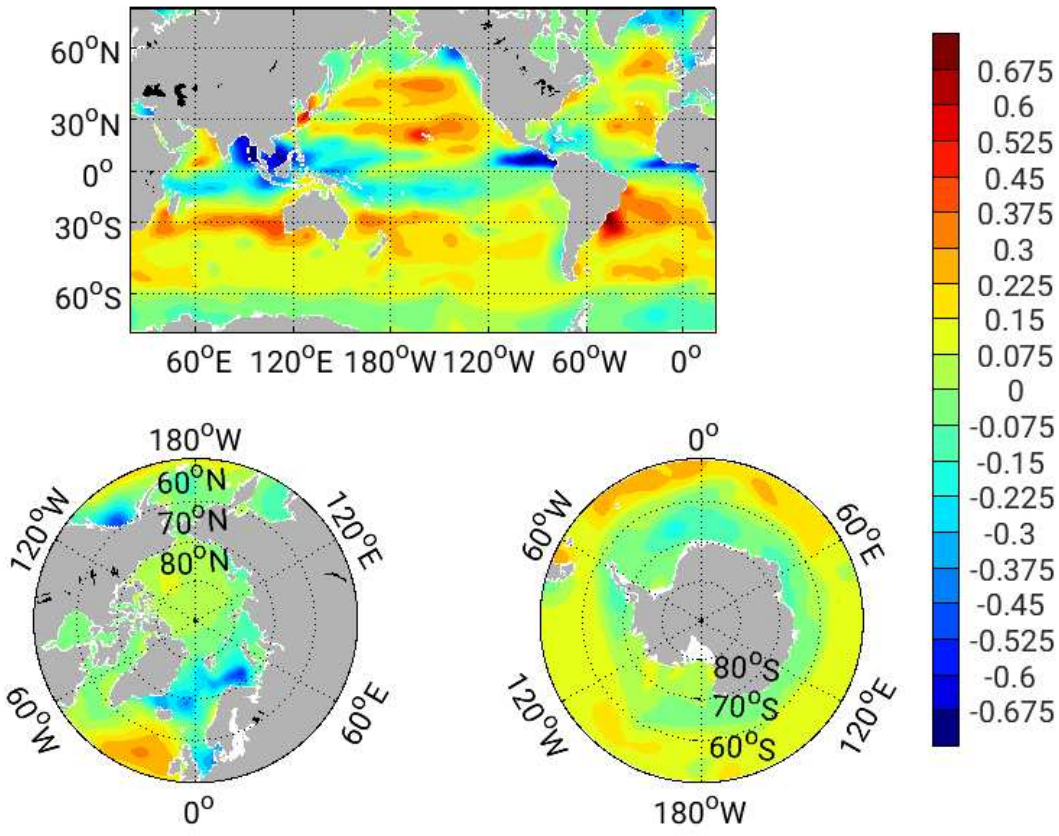

Figure: Mean of Total Adjustment (m/yr): precip