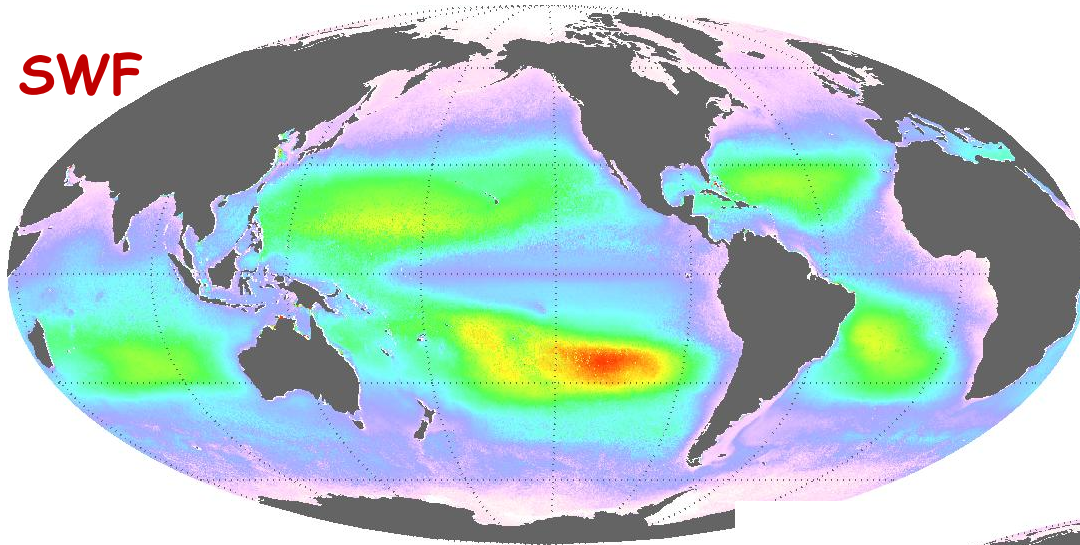


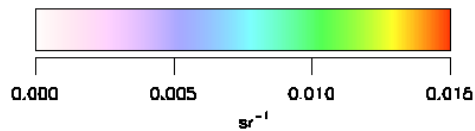
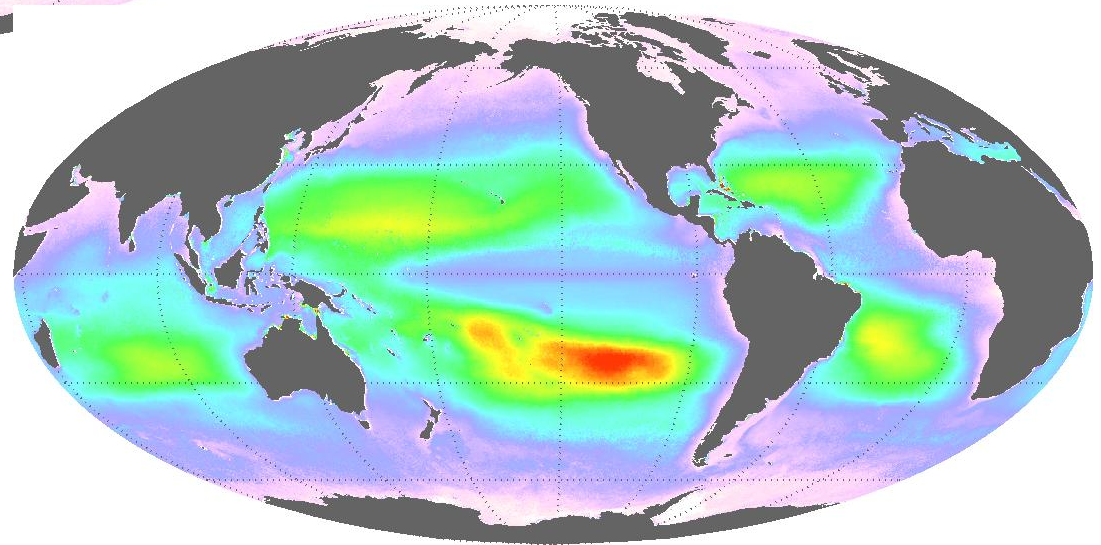
Analysis of Current Biases among Missions

SWF



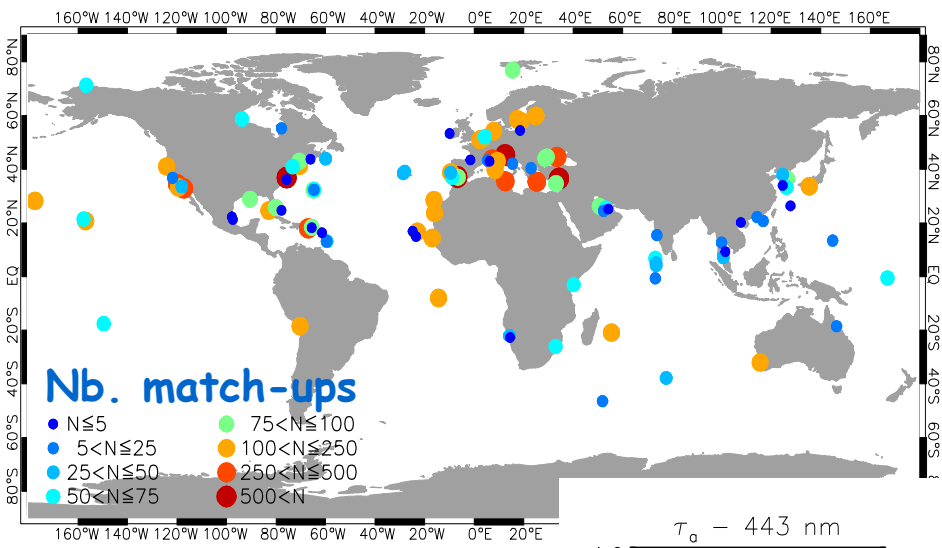
Multi-annual Average
 R_{RS} 443 nm

MOD

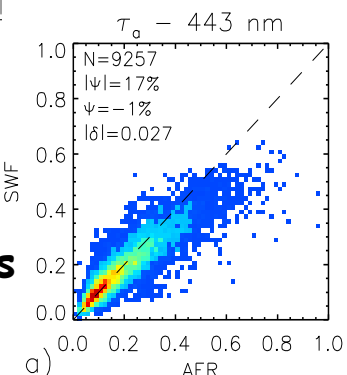


Validation of Aerosol OC Products

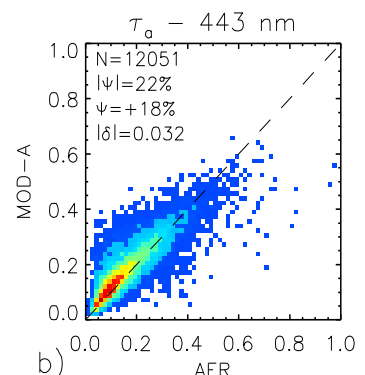
Comparison of satellite retrievals of aerosol optical thickness with field observations from AERONET



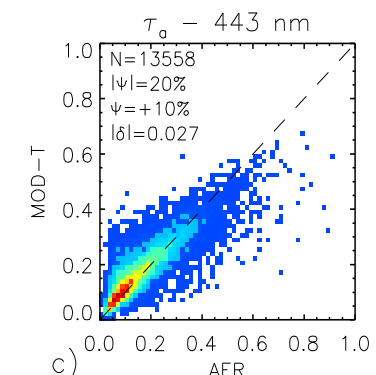
Aerosol optical thickness (443 nm)



SeaWiFS

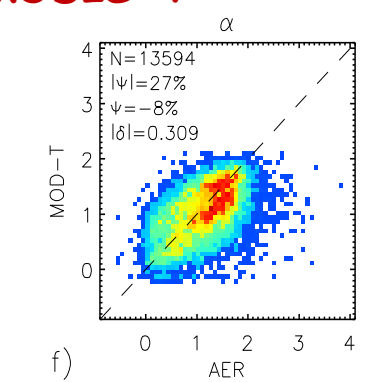
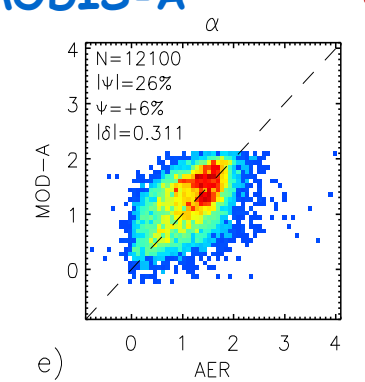
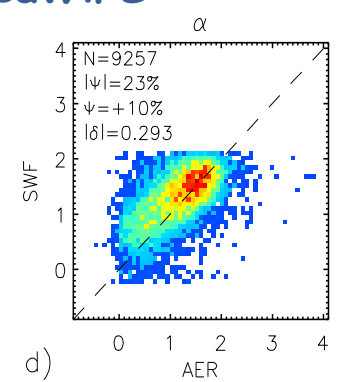


MODIS-A



MODIS-T

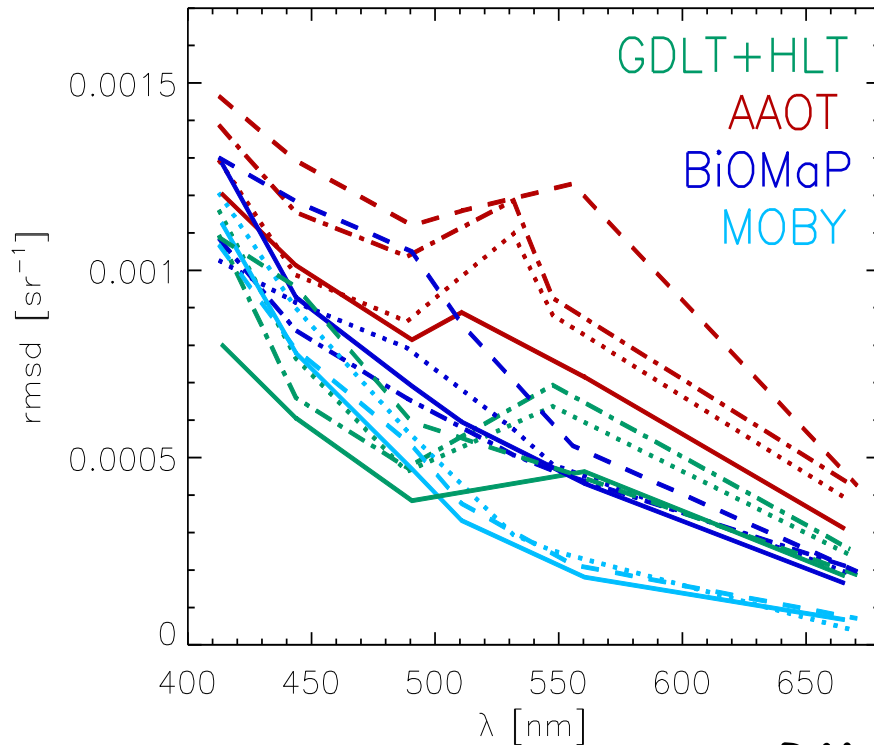
Ångström exponent



Validation of R_{RS} Products

Validation results for different sensors processed with the same code (SeaDAS 6)

RMSD



Baltic; N=60-240
N. Adriatic; N=200-500
European seas; N=100-150
Hawaii; N=100-500

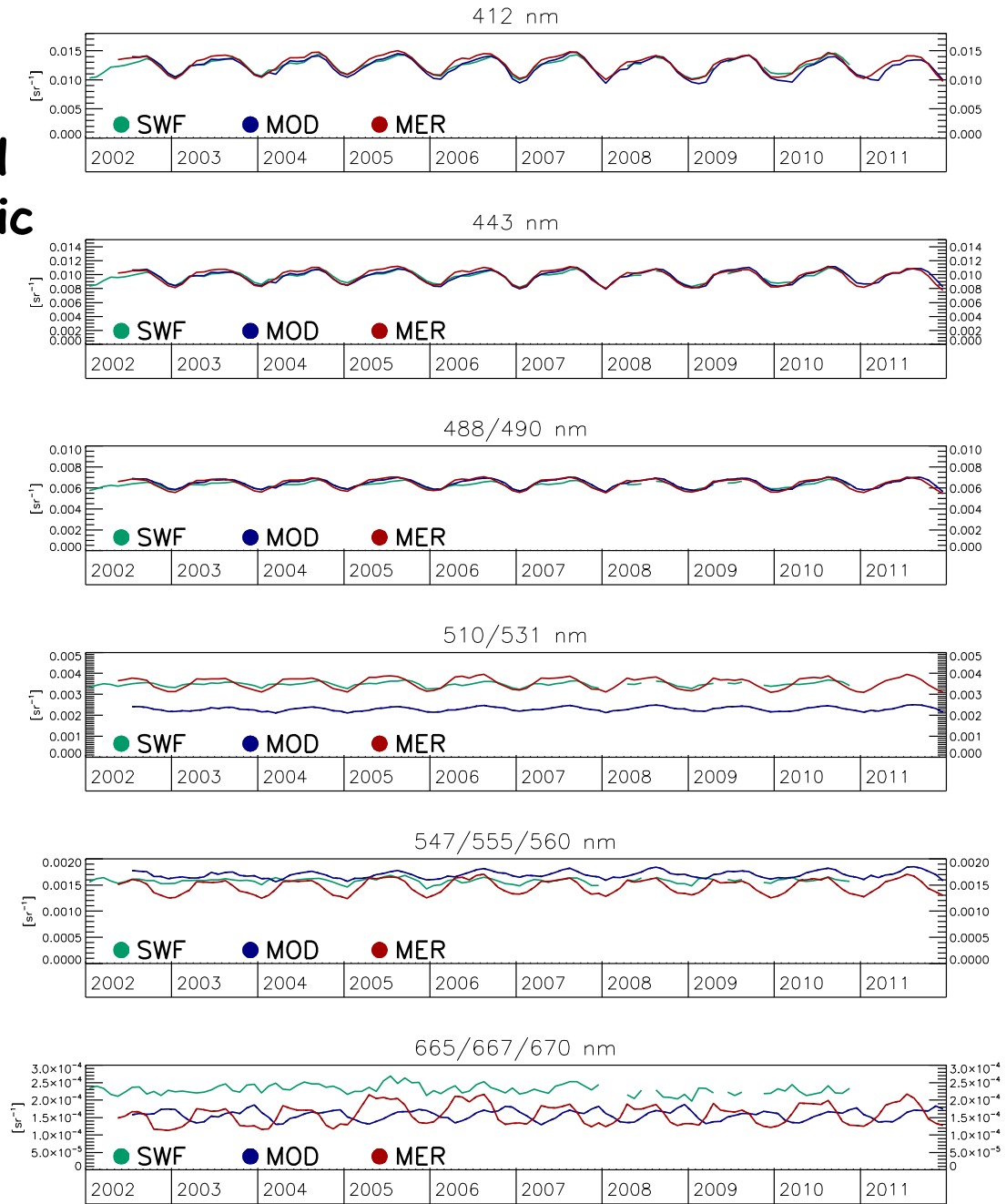
— MERIS
--- SeaWiFS
..... MODIS-A
- . - MODIS-T

RMSD in an envelop
 $0.7-1.5 \cdot 10^{-3} \text{ sr}^{-1}$ (412 nm)
to $1-5 \cdot 10^{-4} \text{ sr}^{-1}$ (red)
across sensors and a variety of waters

Example of monthly series
of R_{RS} independently averaged
over the NE subtropical Pacific
(Longhurst' NPTE province)

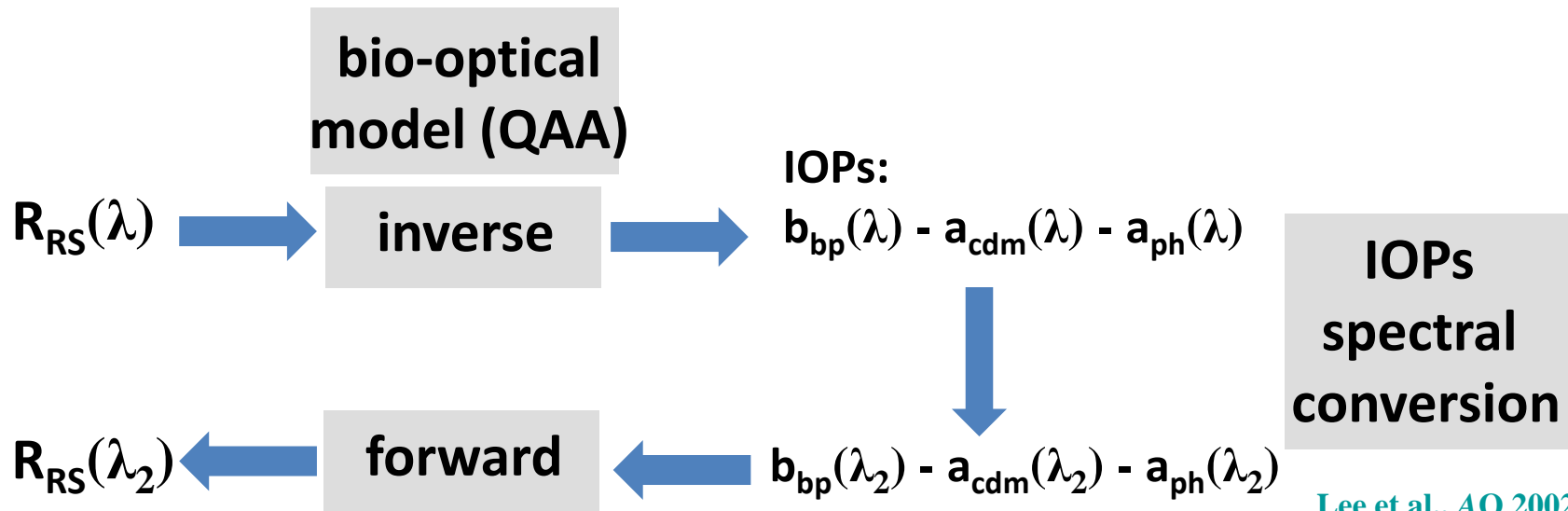
SeaWiFS
MODIS-Aqua
MERIS

processed with SeaDAS 6



Band-Shift Correction

Approach followed to derive $R_{RS}(\lambda_2)$ from input $R_{RS}(\lambda)$:



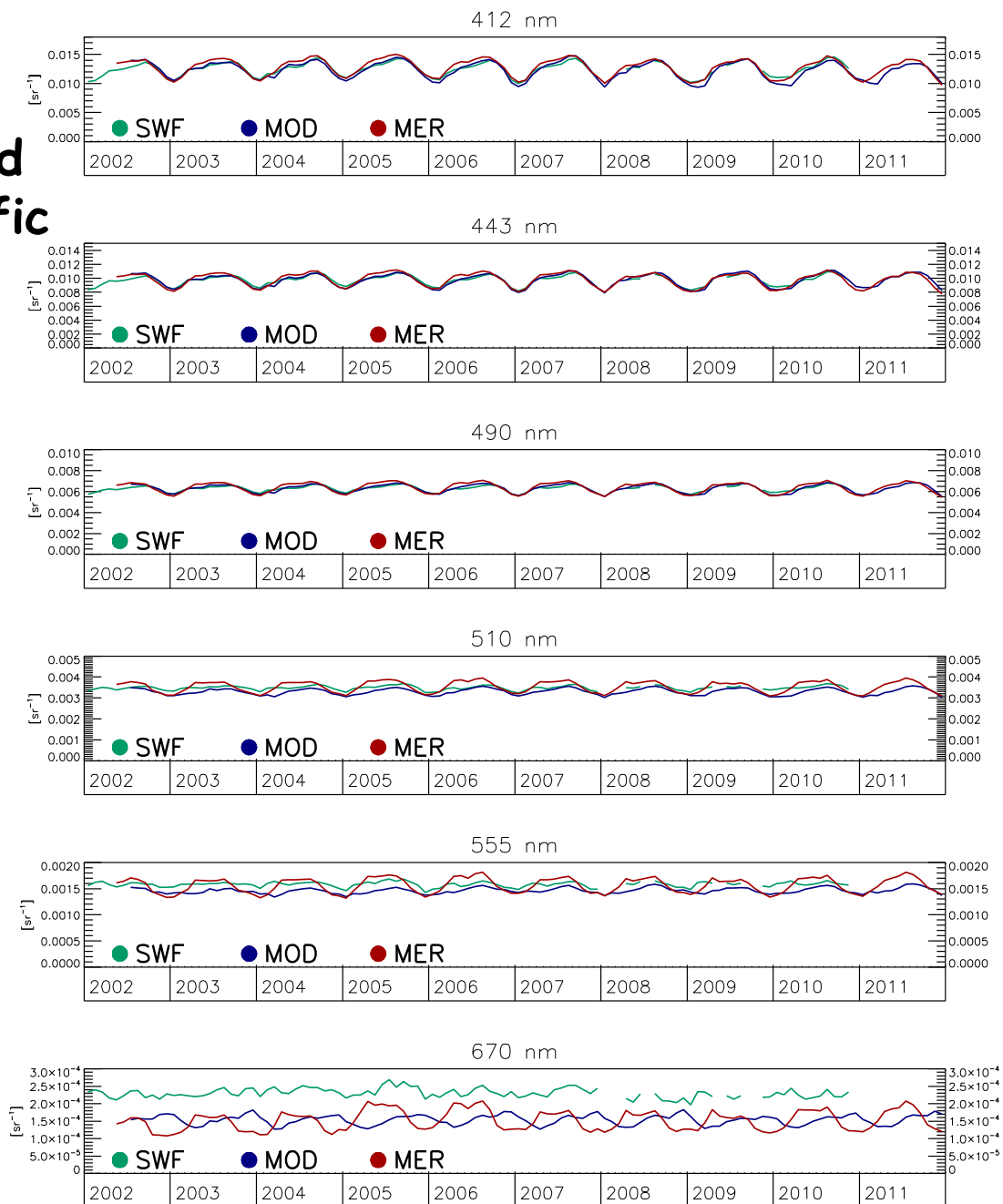
Lee et al., AO 2002
Bricaud et al., JGR 1995

Mélin & Sclep, in prep.

Example of monthly series
of R_{RS} independently averaged
over the NE subtropical Pacific
(Longhurst' NPTE province)

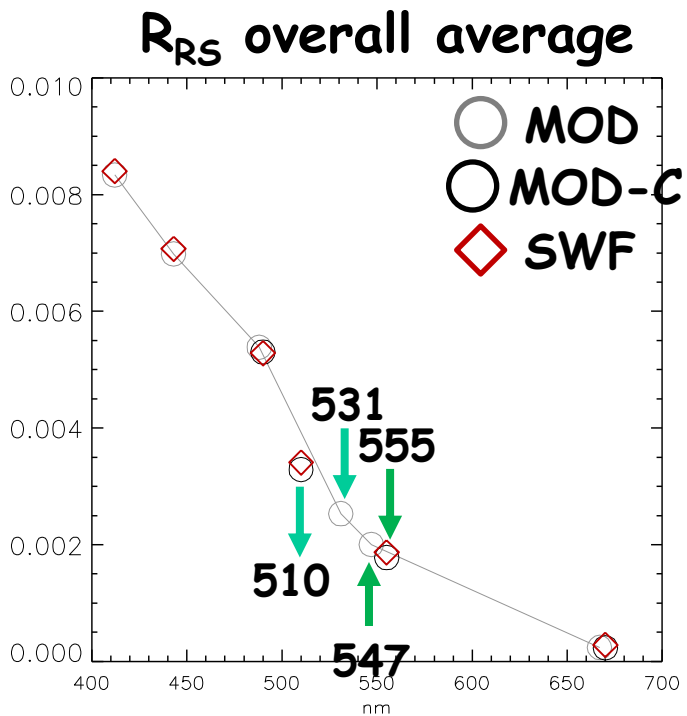
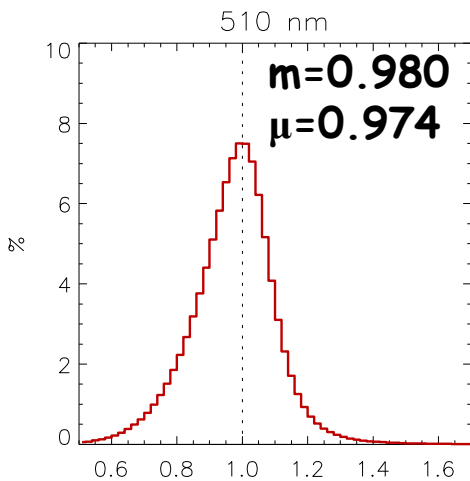
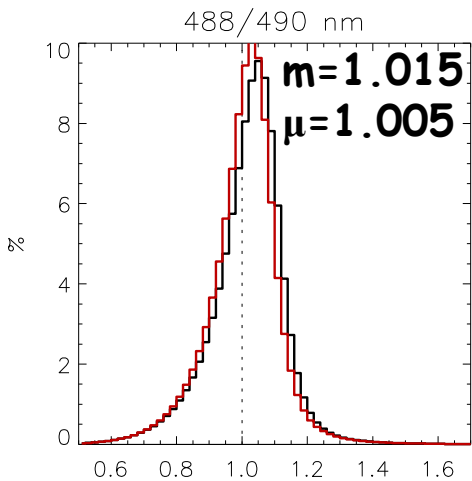
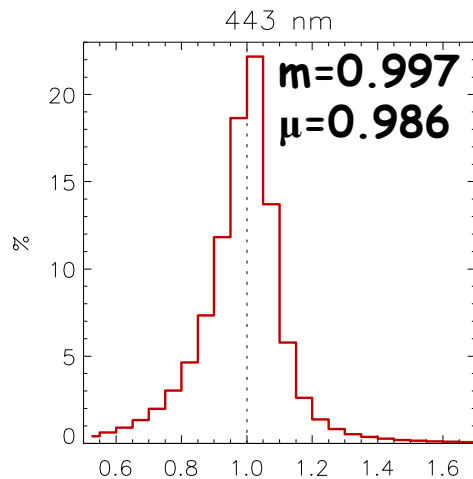
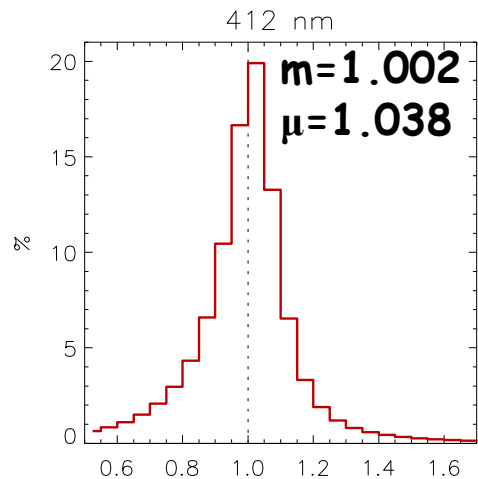
SeaWiFS
MODIS-Aqua
MERIS

processed with SeaDAS 6
band-shifted onto the
SeaWiFS bands



Inter-Comparison Analysis

Coincident spectra (daily)
accumulated for 2003
N=45 10^6 spectra



mean ratio MOD/SWF

Inter-Comparison Analysis

Sensor 1 $(x_i)_{i=1,N}$ and Sensor 2 $(y_i)_{i=1,N}$:

mean relative difference
(relative bias) $\psi = \sum_{i=1}^N \frac{2(y_i - x_i)}{x_i + y_i} \quad [\%]$

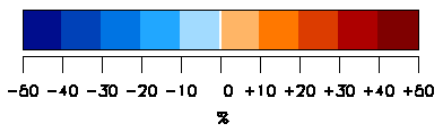
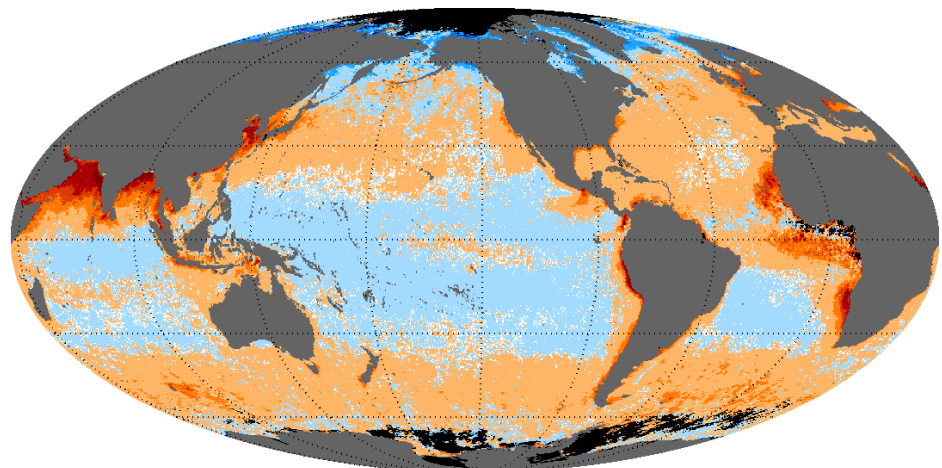
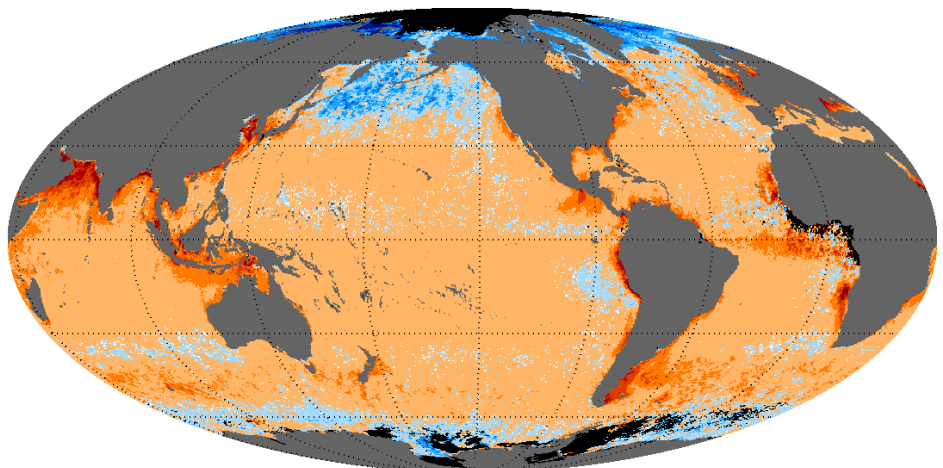
mean difference
(bias) $\delta = \sum_{i=1}^N (y_i - x_i) \quad [\text{sr}^{-1}]$

Inter-Comparison per cell (1/3rd deg.) and day 2003-2007

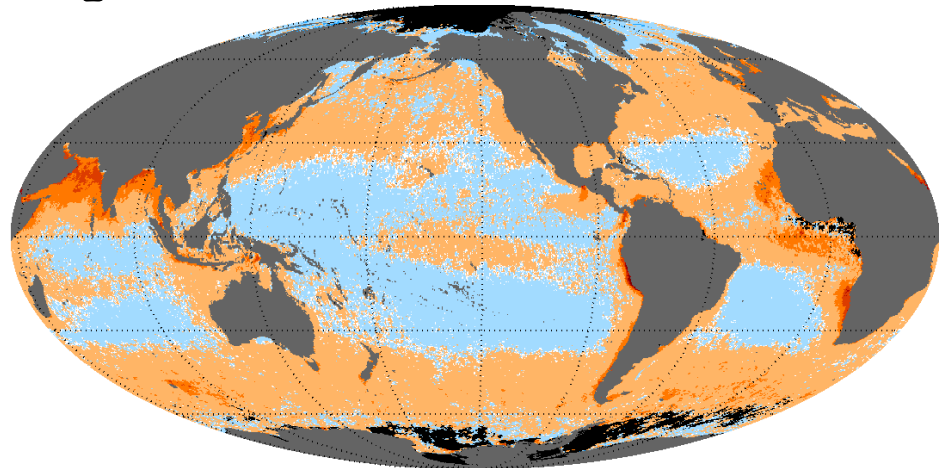
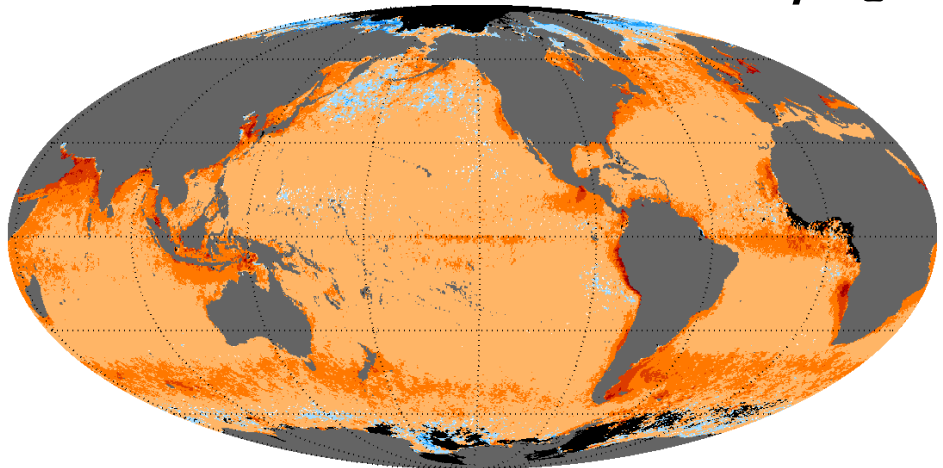
SWF-MER

ψ [412]

SWF-MOD



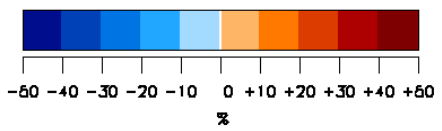
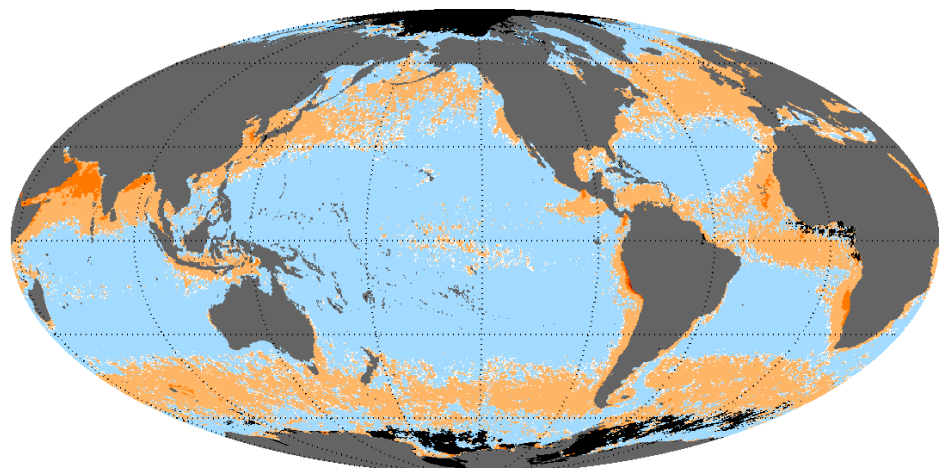
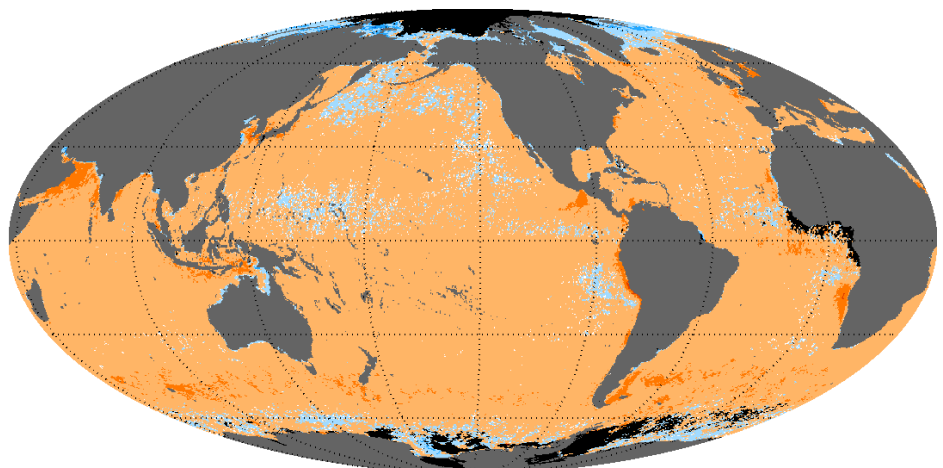
ψ [443]



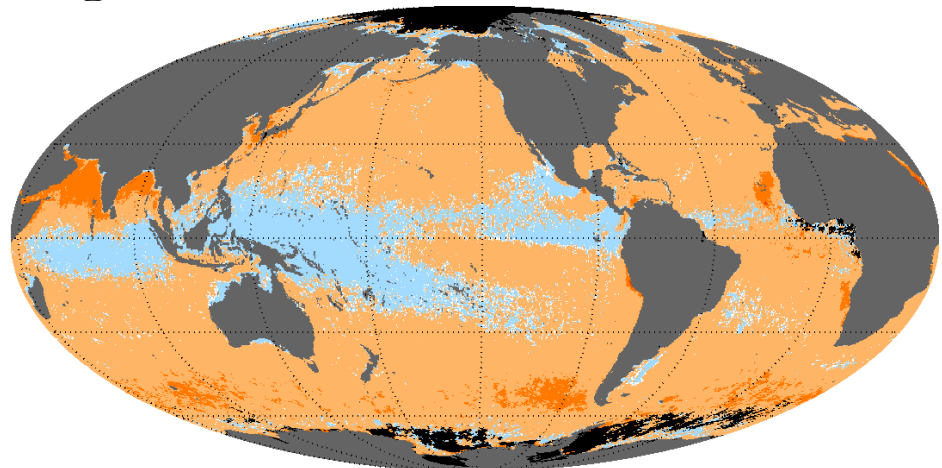
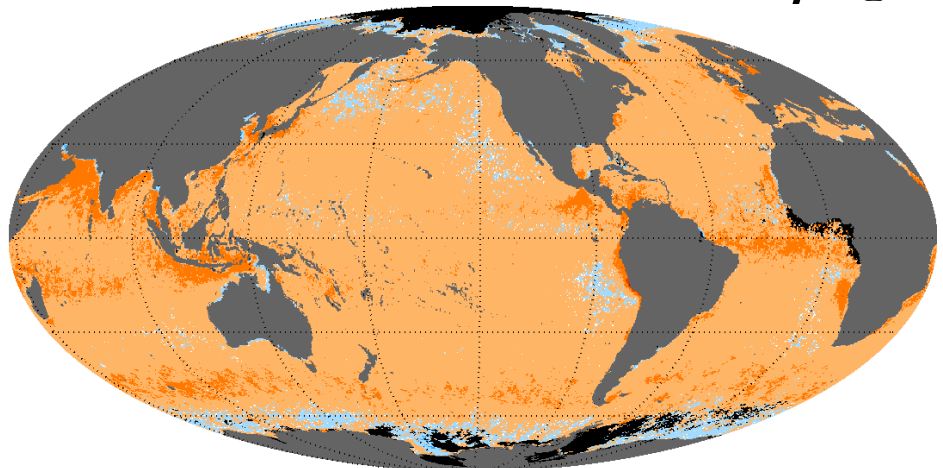
SWF-MER

ψ [490]

SWF-MOD



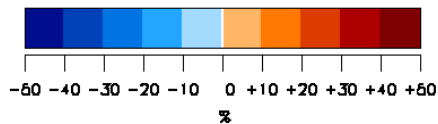
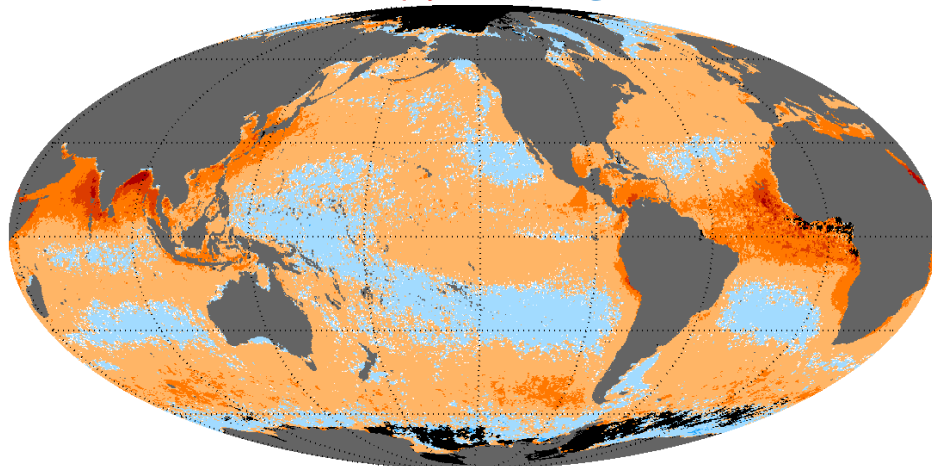
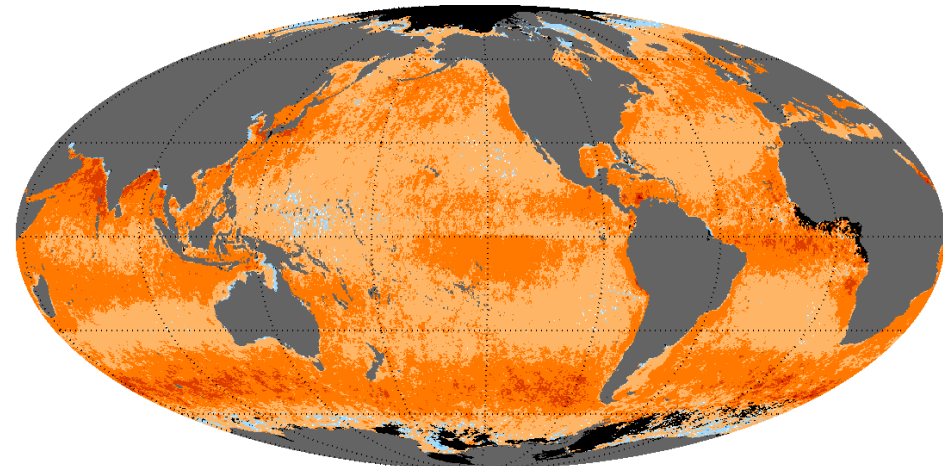
ψ [510]



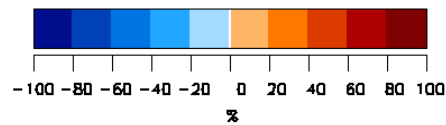
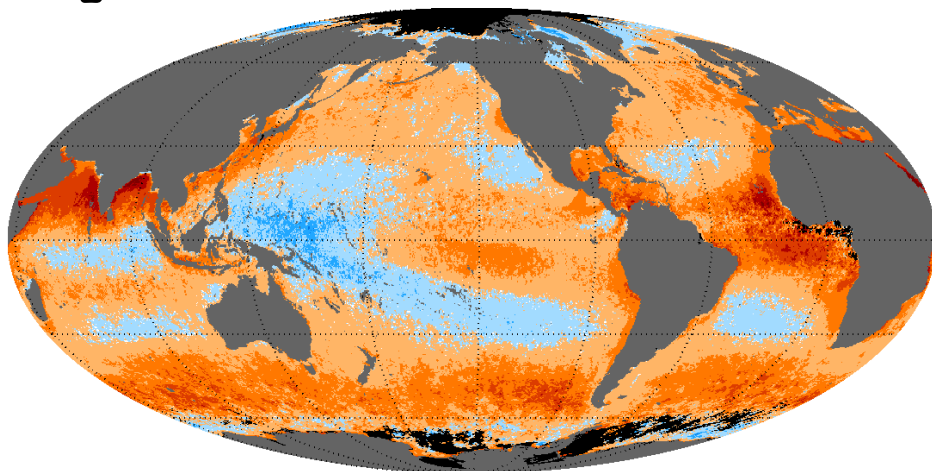
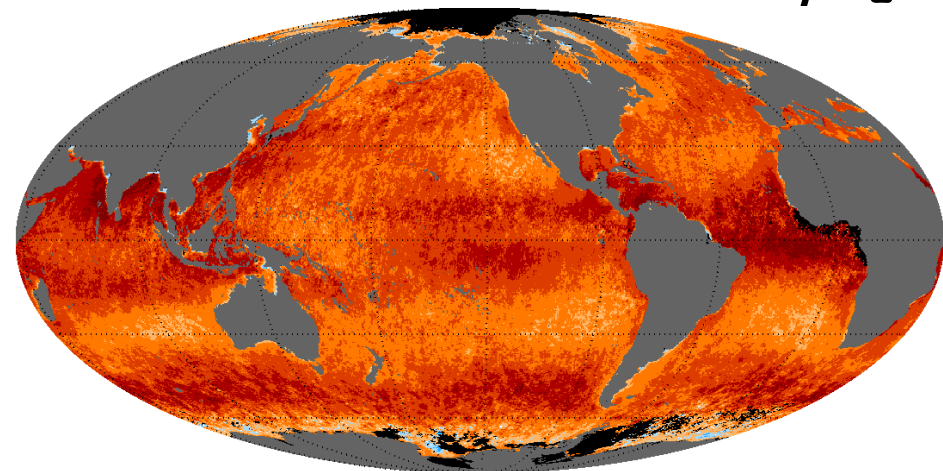
SWF-MER

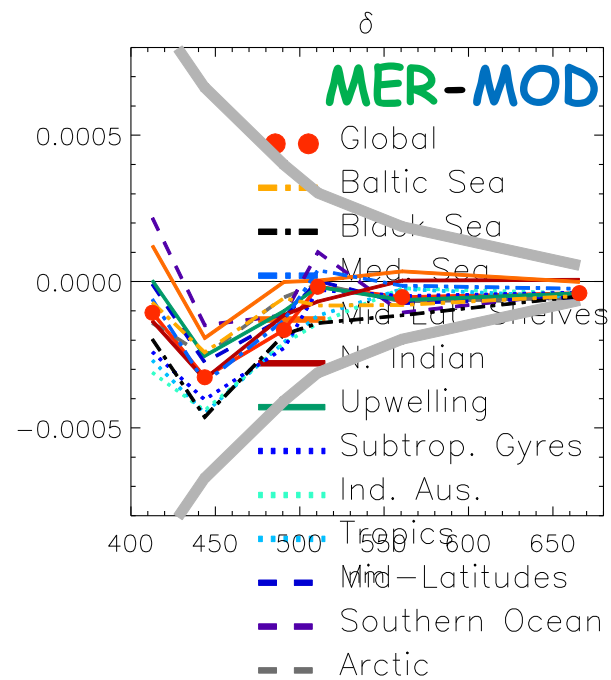
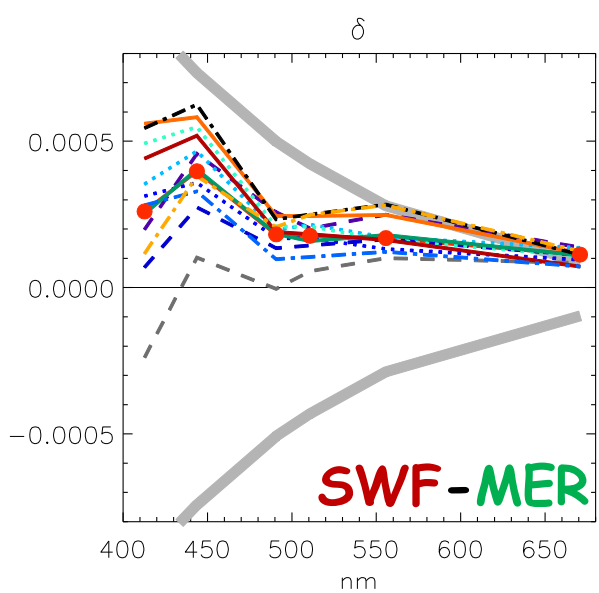
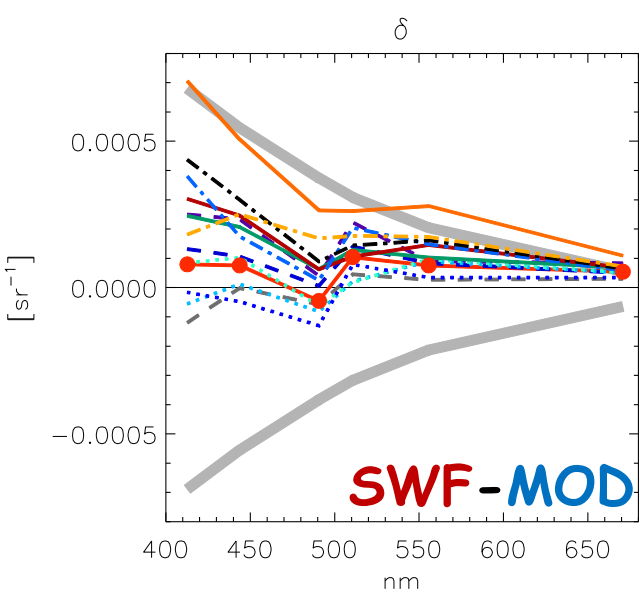
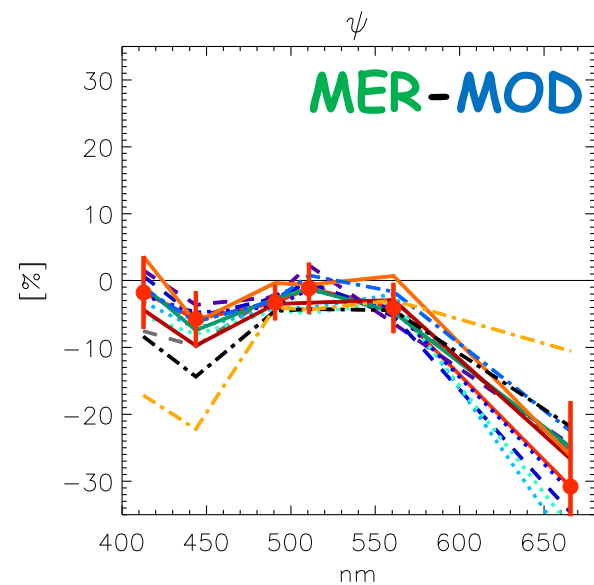
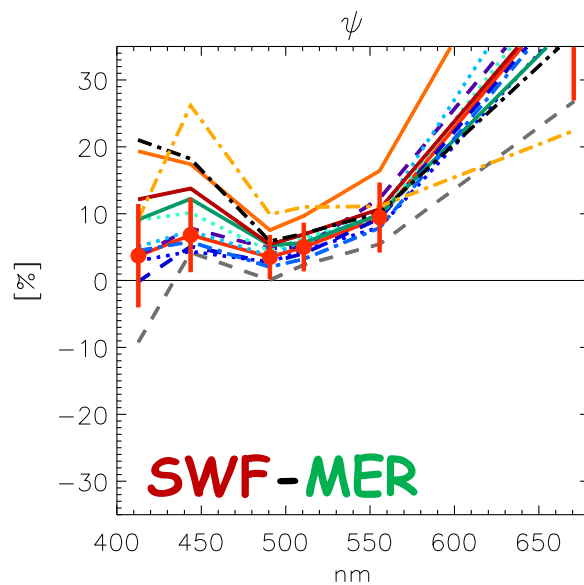
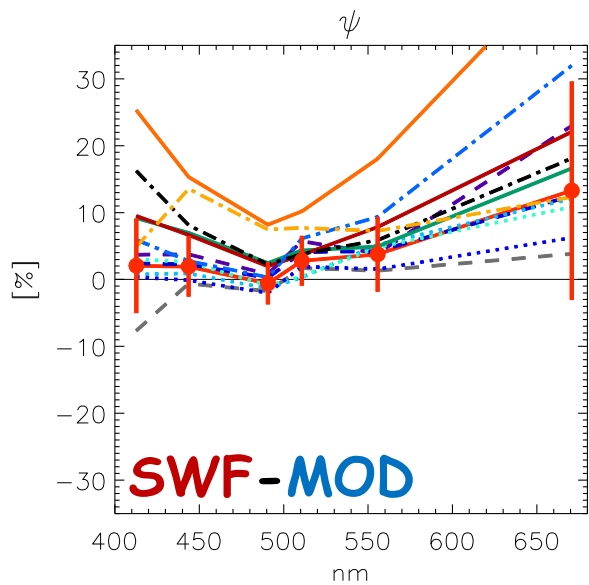
ψ [555]

SWF-MOD



ψ [670]





Conclusions

General consistency of data products from different missions

Bias distributions: significant values, varying in space and time