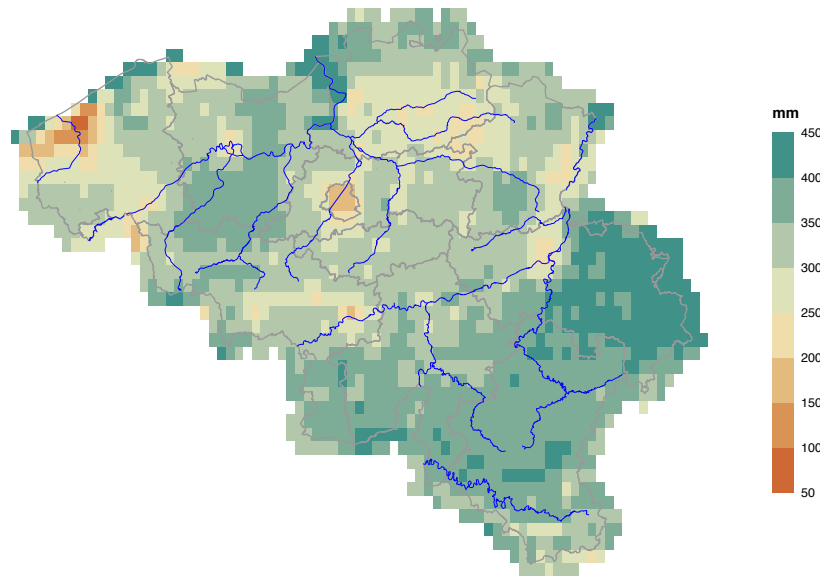
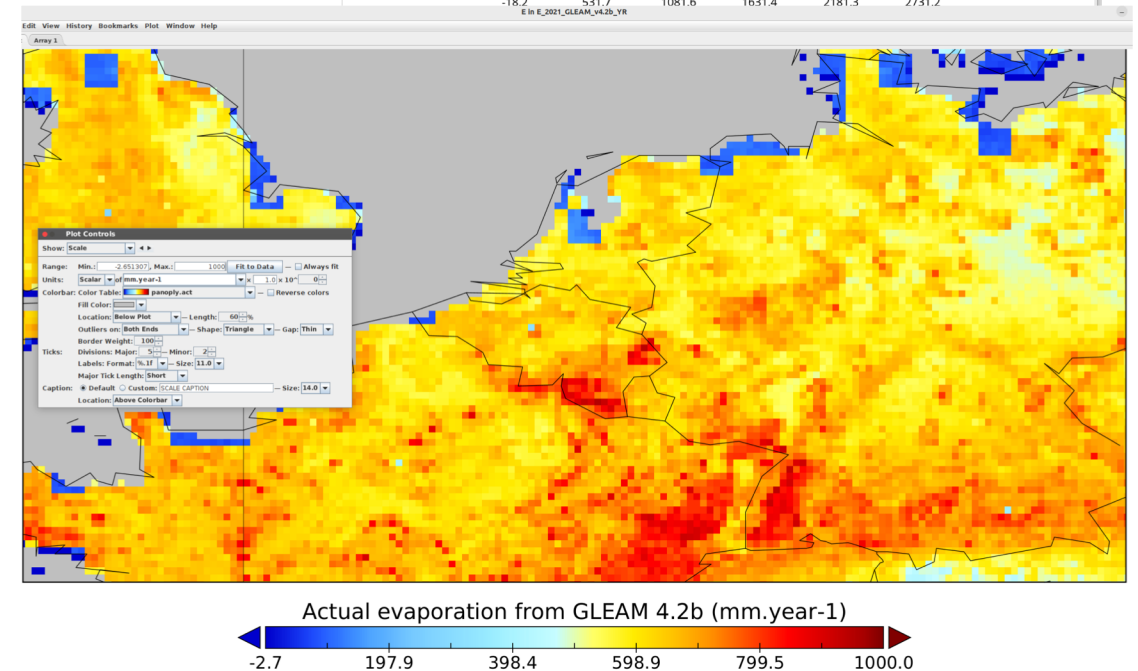
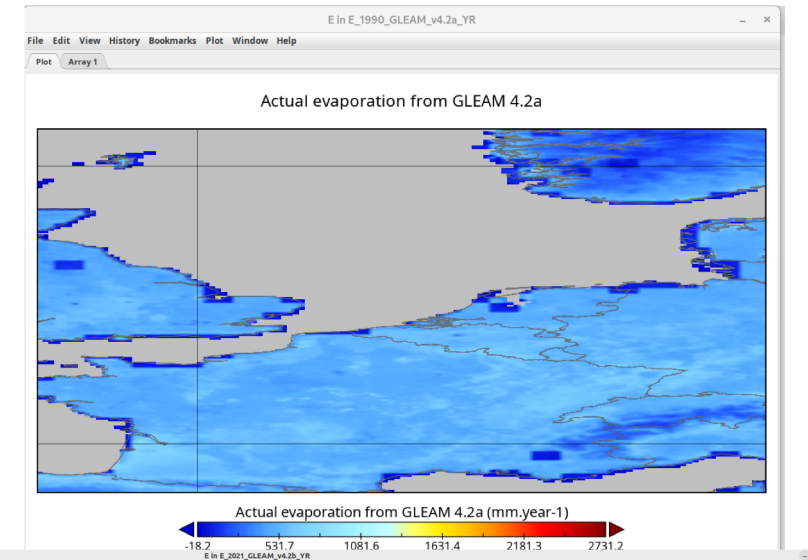

**Update GeoRing
RMIB Michel Journee**

Annual ETR (1991–2020 average)



1. Higher relative humidity and lower mean temperatures suppress evapotranspiration.
2. Vegetation cover is less dense, and the soils are characterized by saline conditions.
3. Pumping management aimed at preventing flooding further constrains actual evapotranspiration



L2

1. Etbs
2. H-SAF (v09)
3. Meteoswiss v2

L3

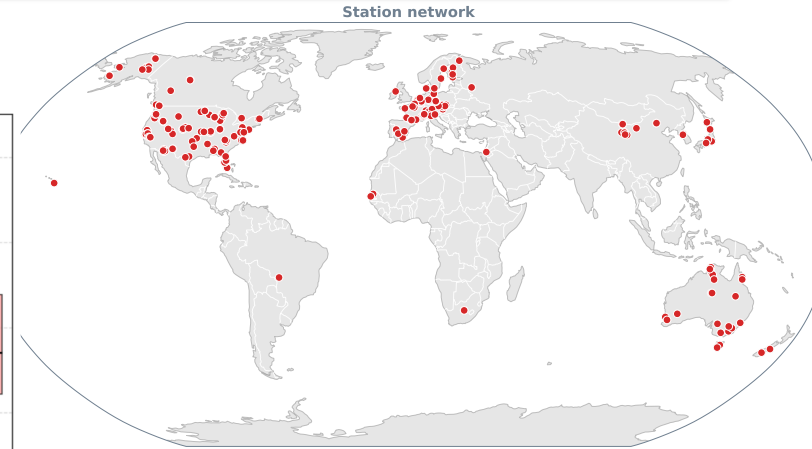
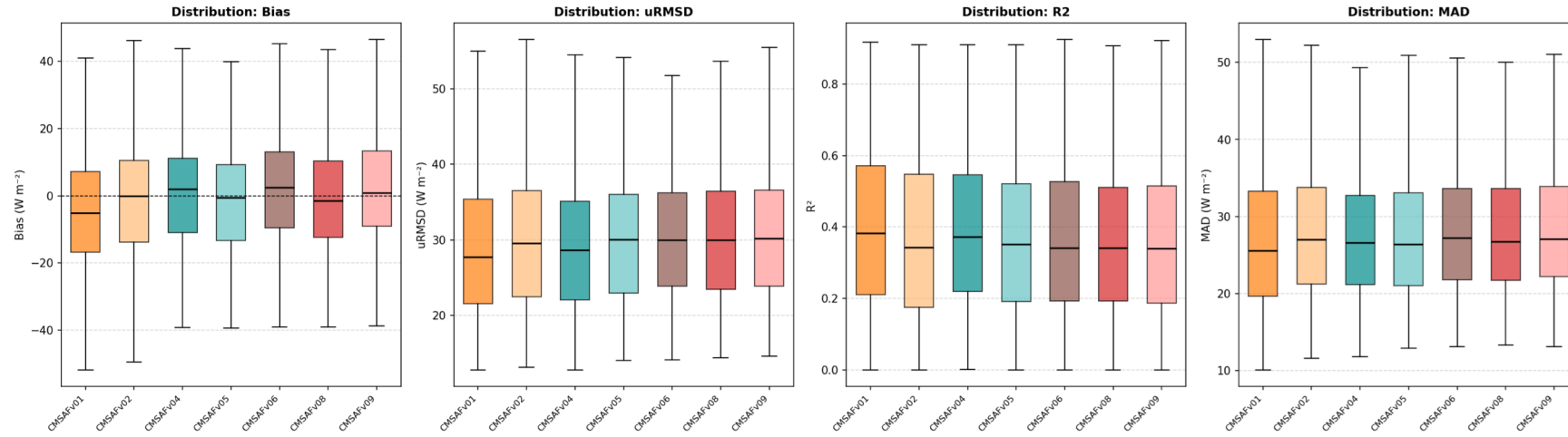
1. HOAPS
2. Etbs

New remapping 0.25 with mask to avoid interpolation

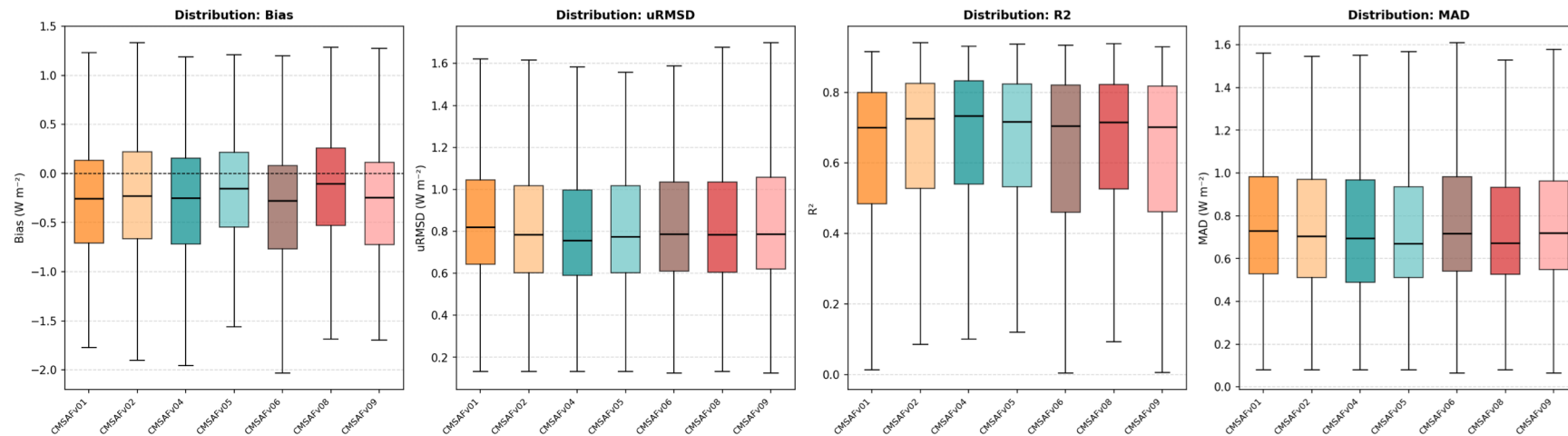
Various versions tested:

	Radiations	Meteo	SM
1	ERA5	ERA5	ERA5
2	Met v1	ERA5	ERA5
4	Met v1	ERA5-Land	ERA5
5	Met v1	ERA5-Land	ERA5-Land
6	Met v1	ERA5-Land	H-SAF
8	Met v2	ERA5-Land	ERA5-Land
9	Met v2	ERA5-Land	H-SAF

Sensible heat flux (H)

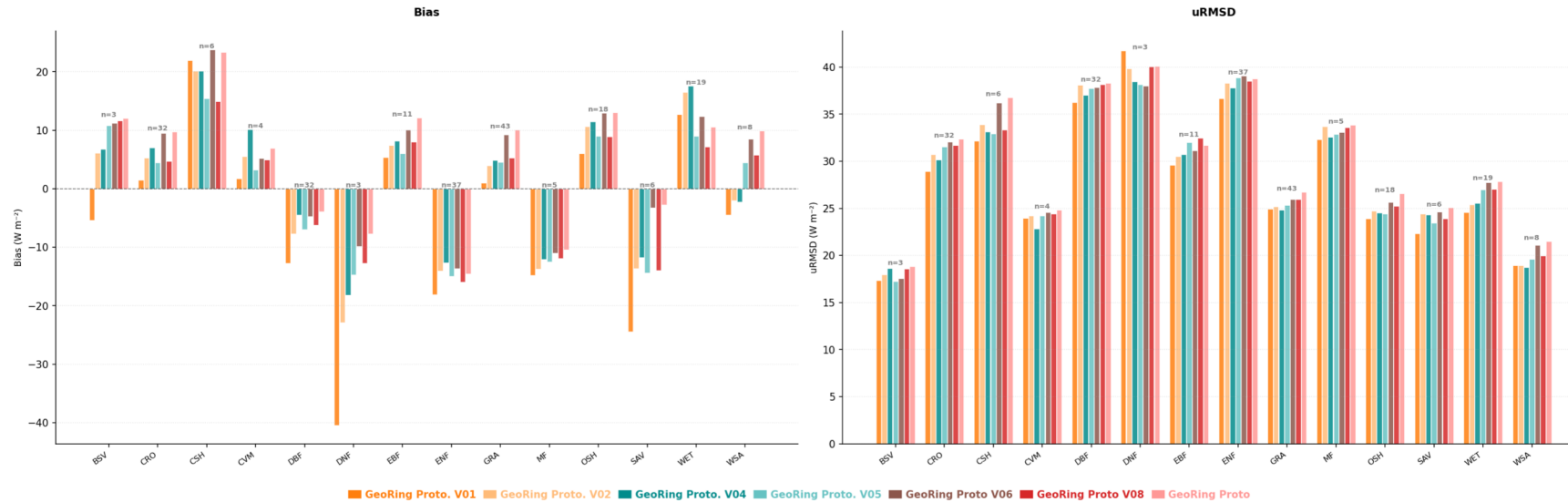


Evapotranspiration (ET)

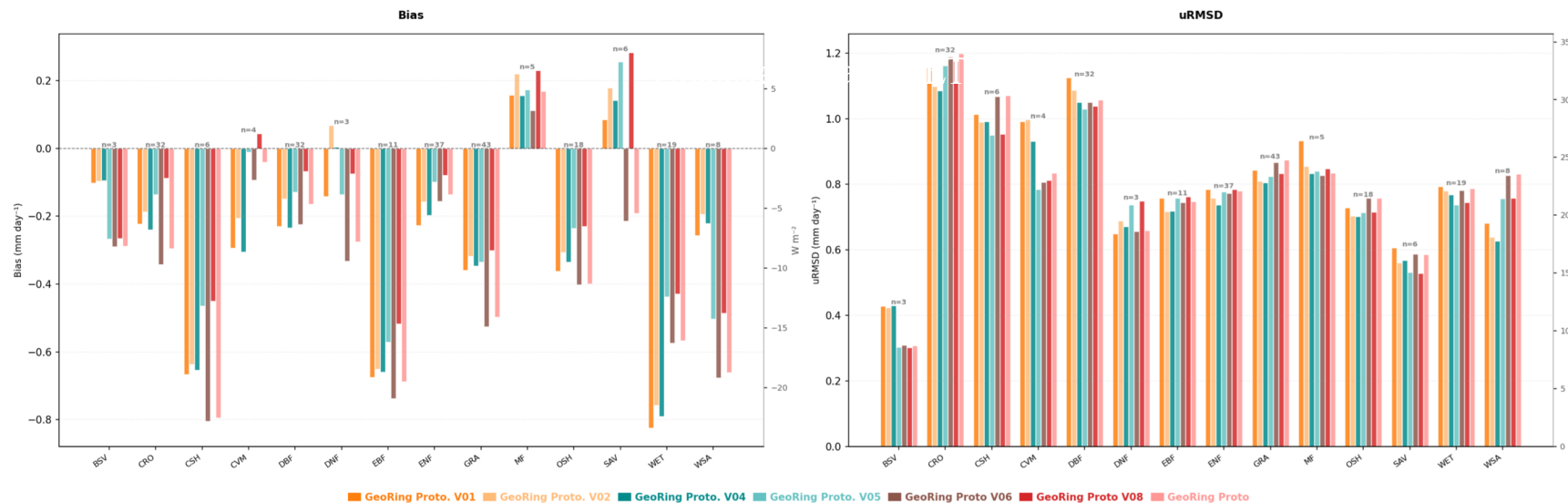


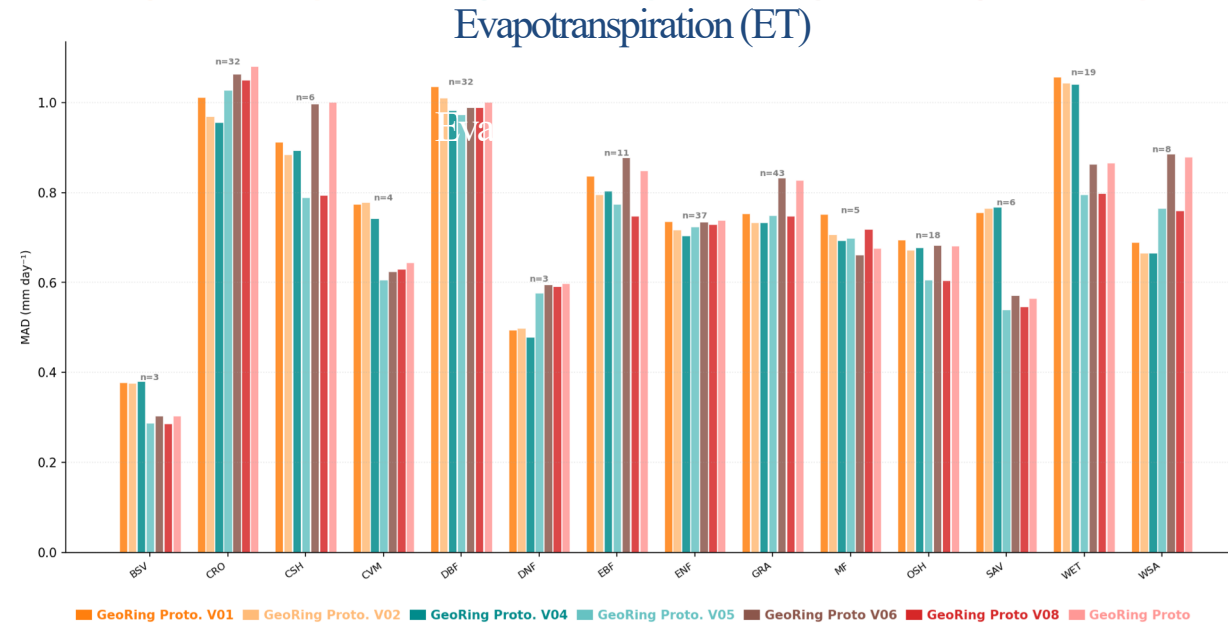
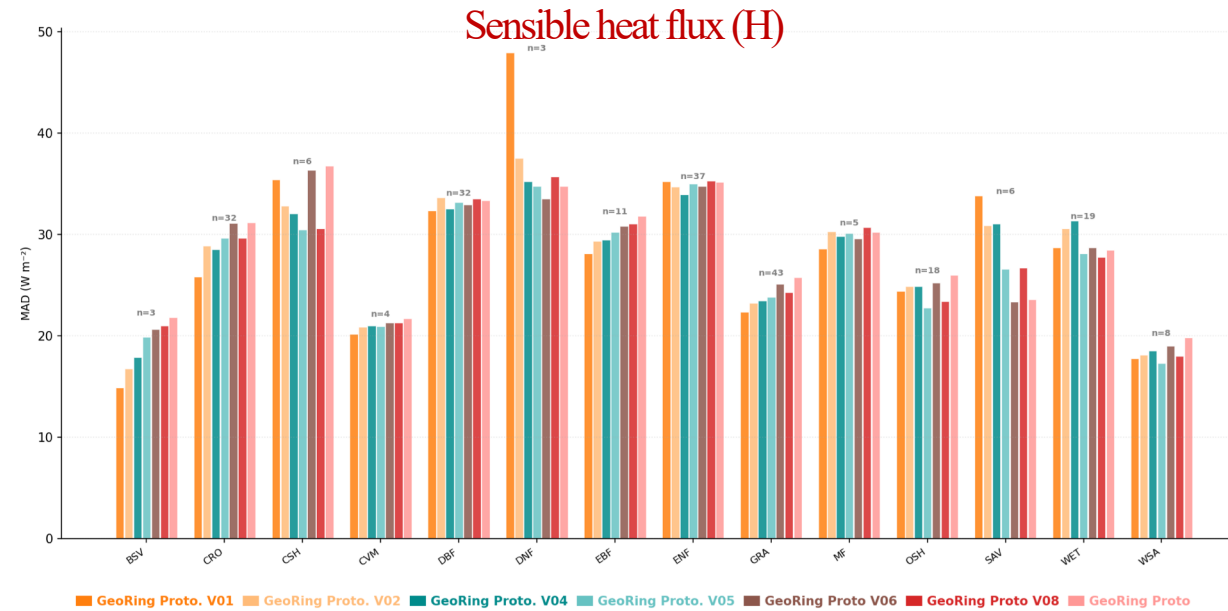
- Validation against 227 stations over the globe
- v8 better than v9 ?

Sensible heat flux (H)



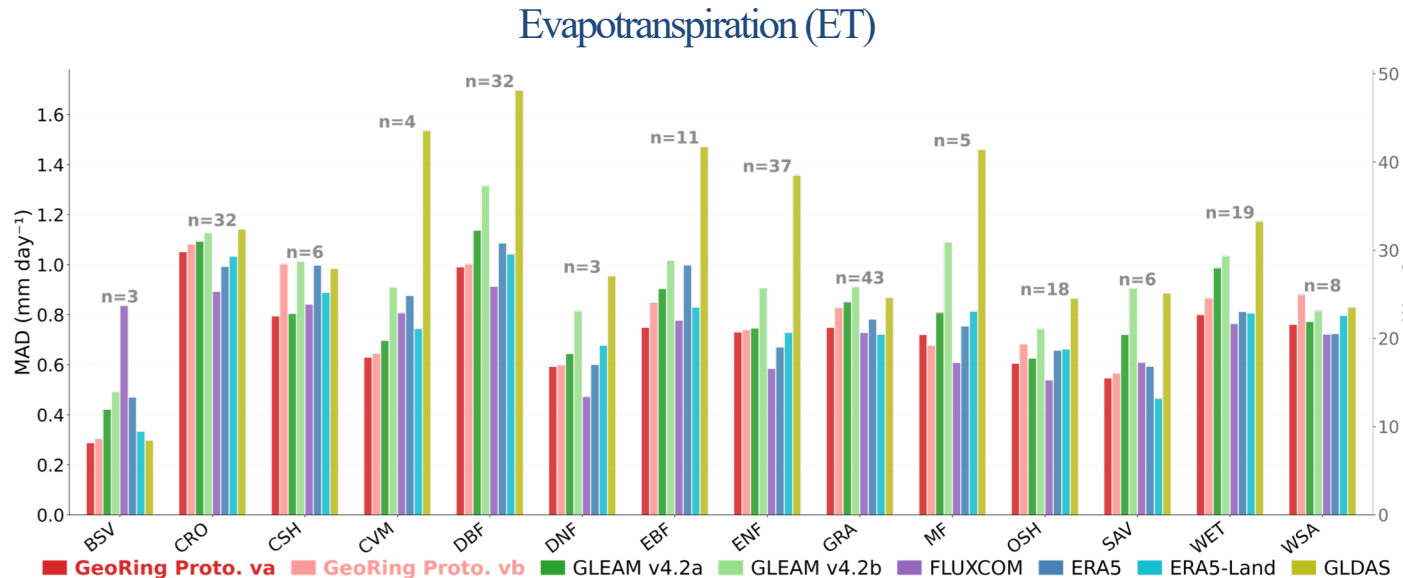
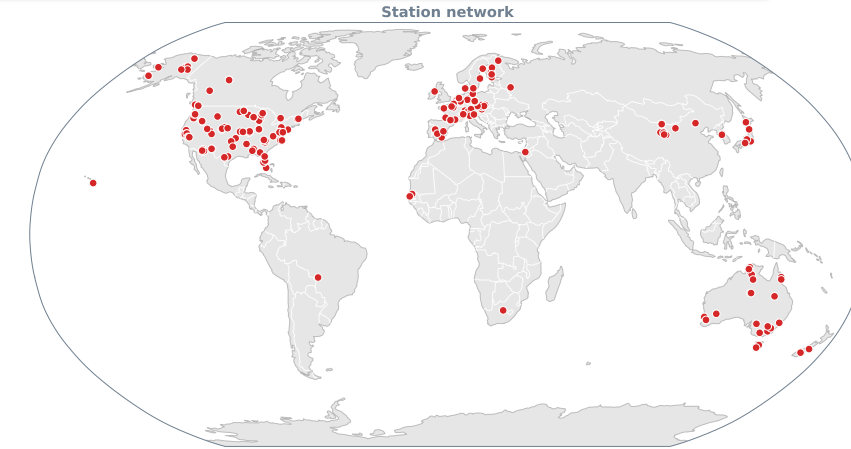
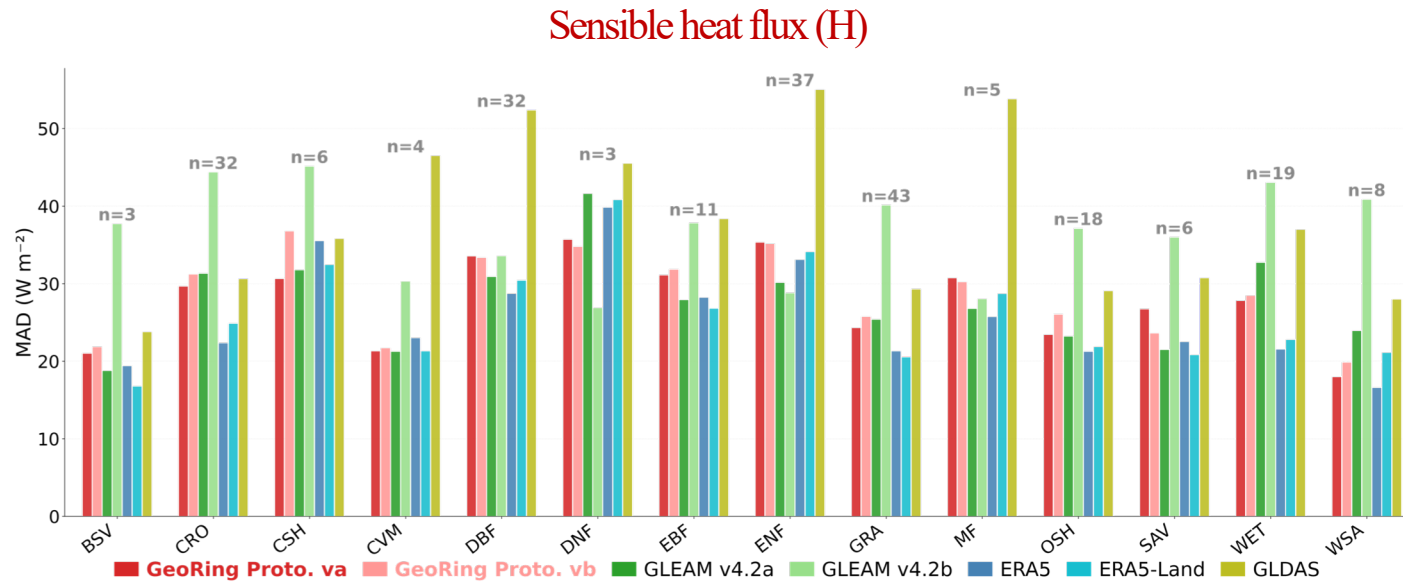
Evapotranspiration (ET)





Dataset	Var	Optimal	Target	Threshold

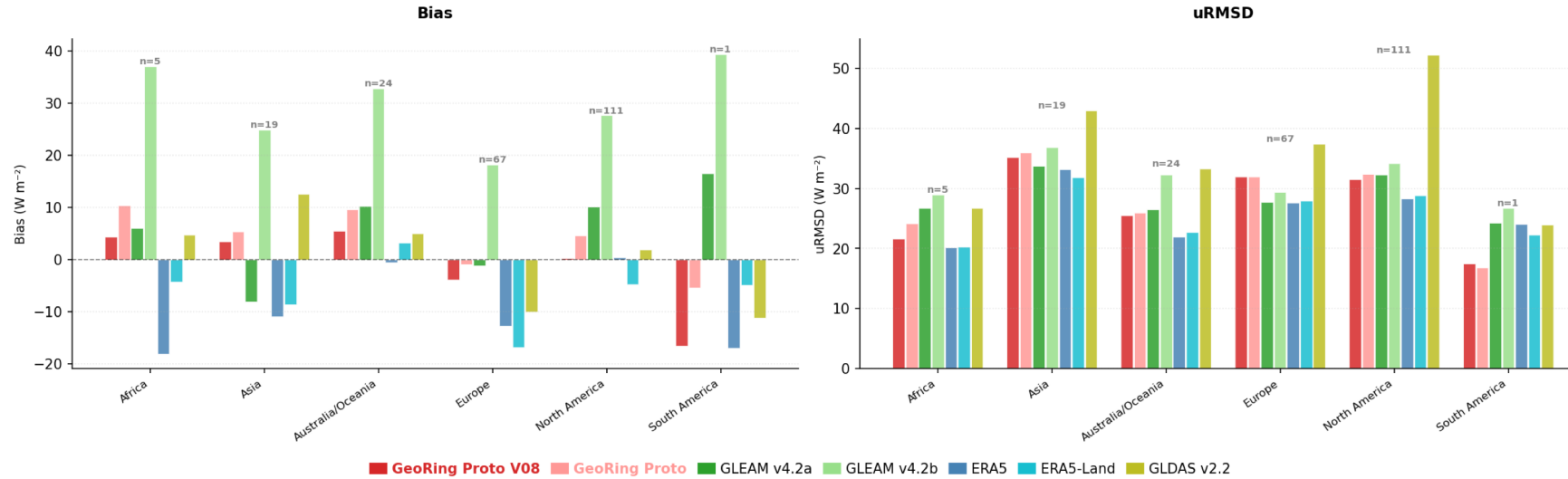
CMSAFv01	LE	20.3%	70.9%	95.2%
CMSAFv02	LE	21.6%	71.8%	95.6%
CMSAFv04	LE	22.0%	71.4%	95.2%
CMSAFv05	LE	27.3%	76.2%	94.3%
CMSAFv06	LE	22.0%	65.2%	94.3%
CMSAFv08	LE	28.2%	75.8%	95.2%
CMSAFv09	LE	23.8%	65.6%	94.3%
CMSAFv01	H	18.9%	76.7%	95.2%
CMSAFv02	H	22.5%	78.9%	95.2%
CMSAFv04	H	20.3%	79.3%	95.2%
CMSAFv05	H	17.2%	83.3%	97.4%
CMSAFv06	H	18.5%	81.1%	95.2%
CMSAFv08	H	15.4%	81.1%	96.9%
CMSAFv09	H	20.7%	81.5%	95.6%
CMSAFv01	ET	19.4%	70.9%	94.7%
CMSAFv02	ET	20.7%	71.8%	95.2%
CMSAFv04	ET	21.1%	71.4%	95.2%
CMSAFv05	ET	28.6%	74.4%	95.6%
CMSAFv06	ET	22.5%	64.3%	94.3%
CMSAFv08	ET	27.8%	74.9%	95.2%
CMSAFv09	ET	22.9%	65.2%	94.3%



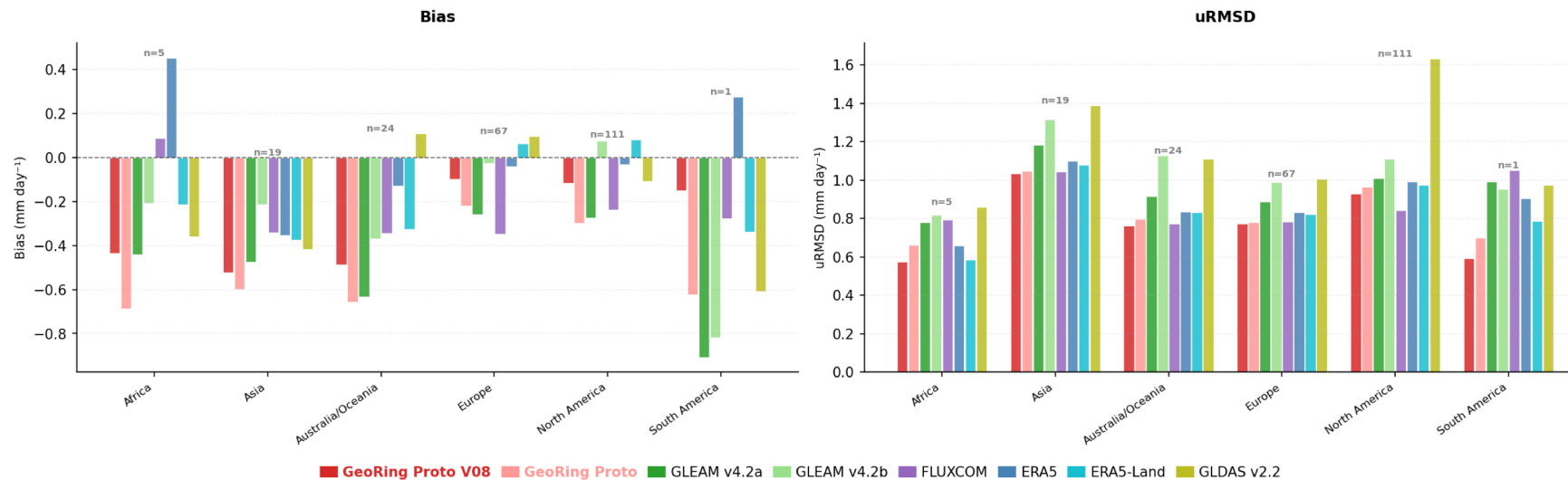
- Validation against 227 stations over the globe
- Meet state-of-the-art accuracy standards

Proto. va = ERA5-Land soil moisture input | Proto. vb = H-SAF soil moisture input.

Sensible heat flux (H)



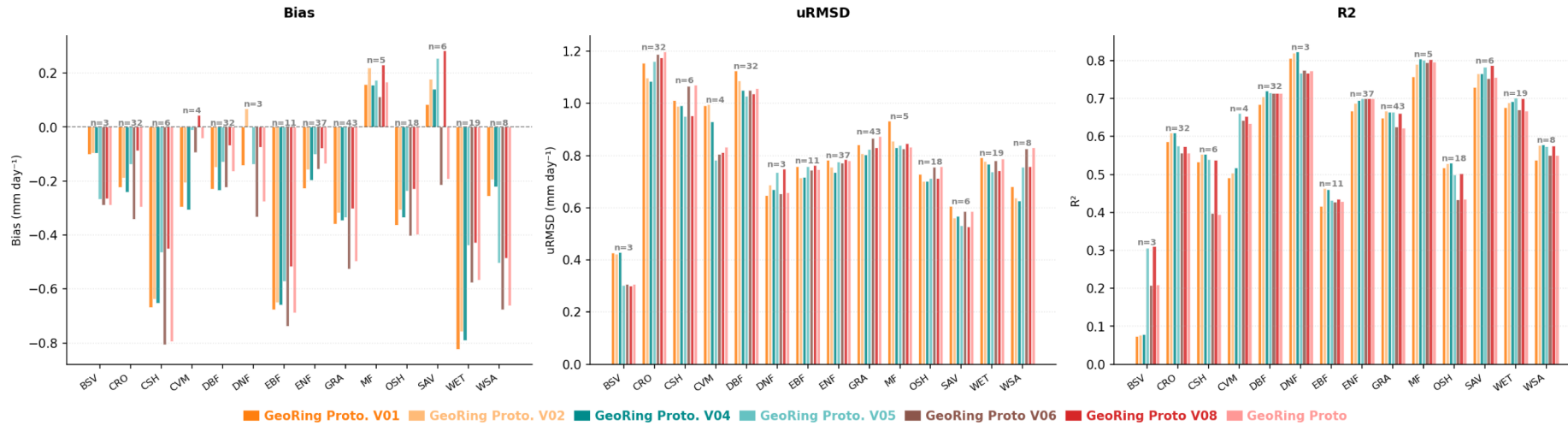
Evapotranspiration (ET)



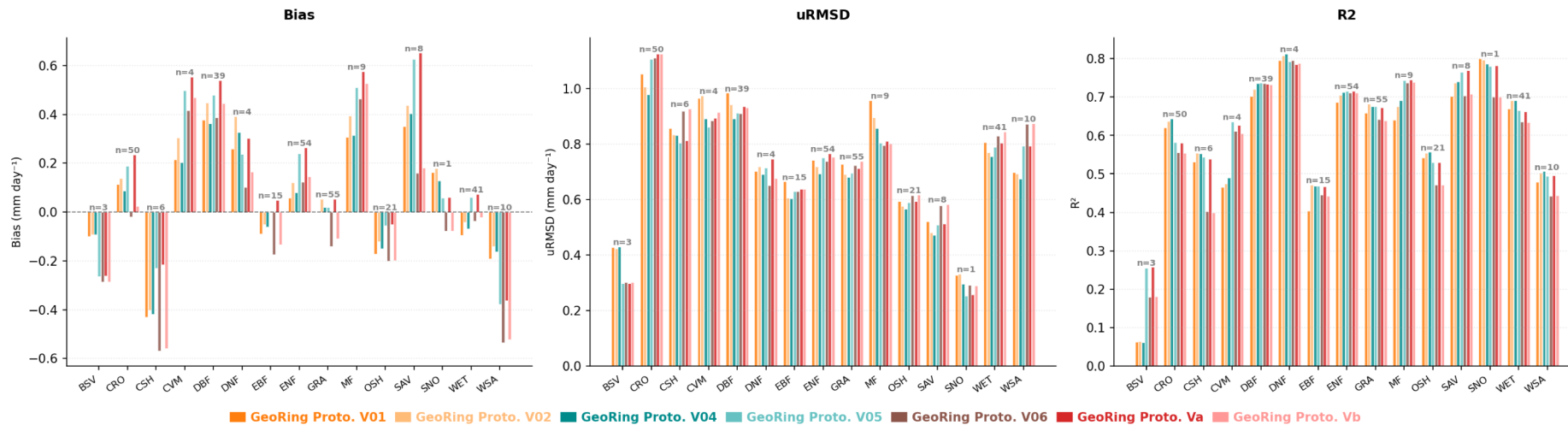
Better with uncorrected ?

Corrected

Statistics by IGBP — ET



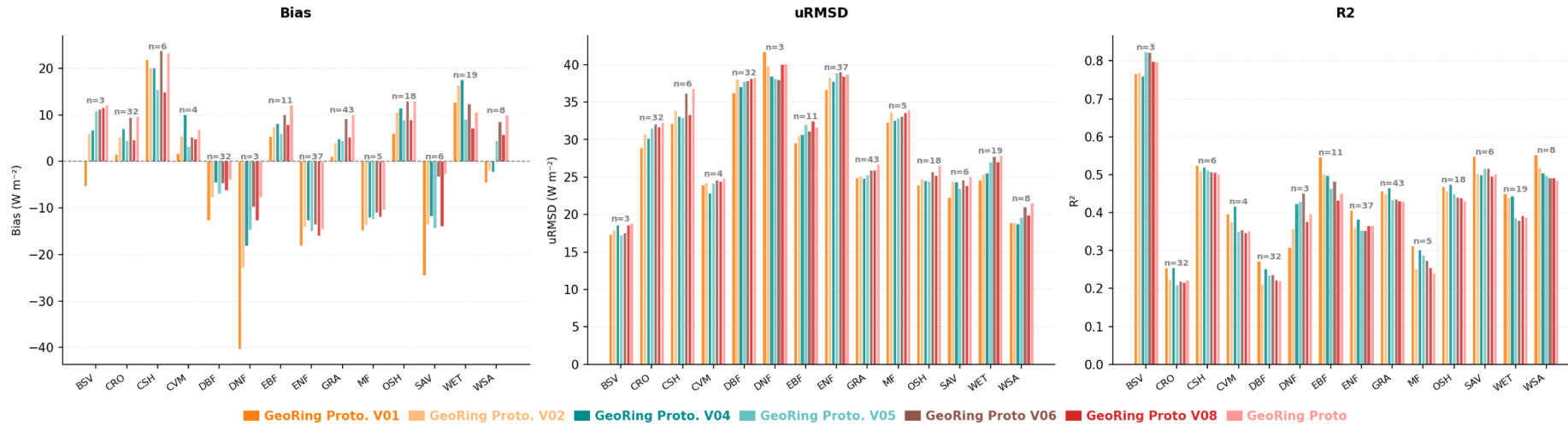
Statistics by IGBP — ET



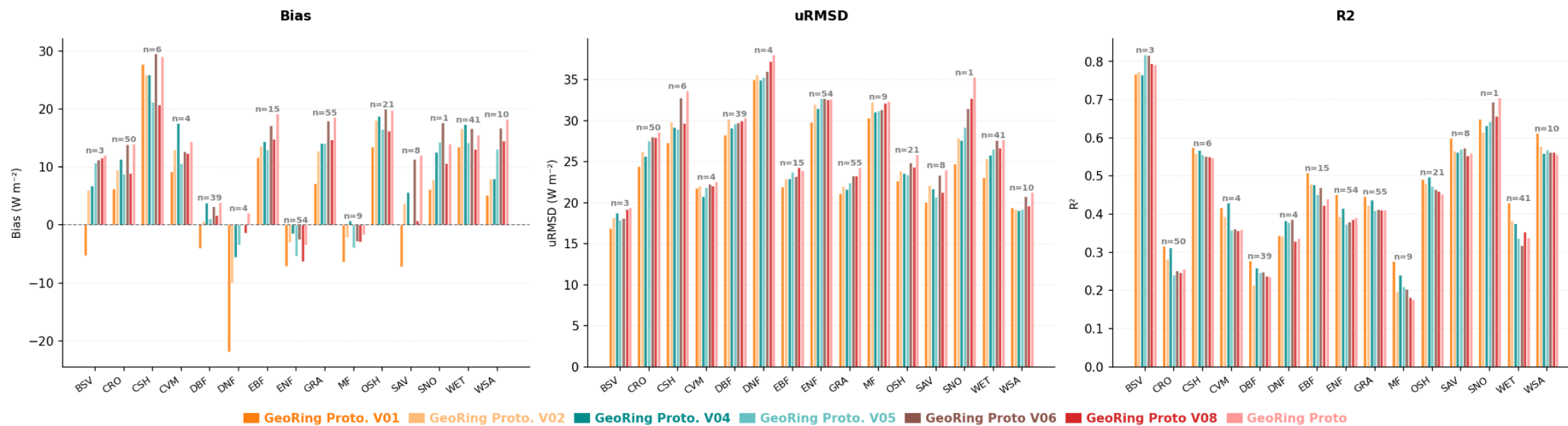
Better with uncorrected ?

Corrected

Statistics by IGBP — H

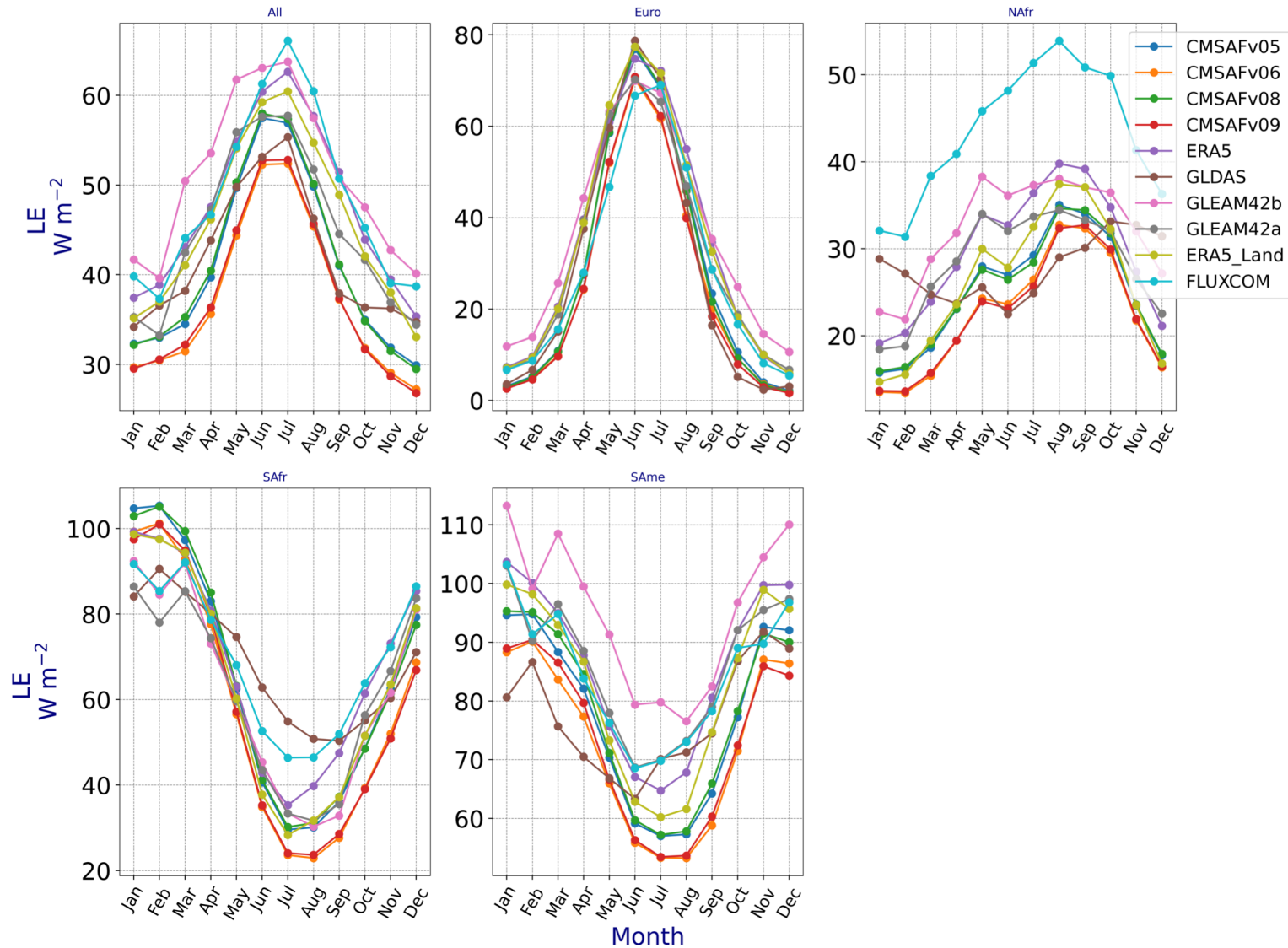


Statistics by IGBP — H



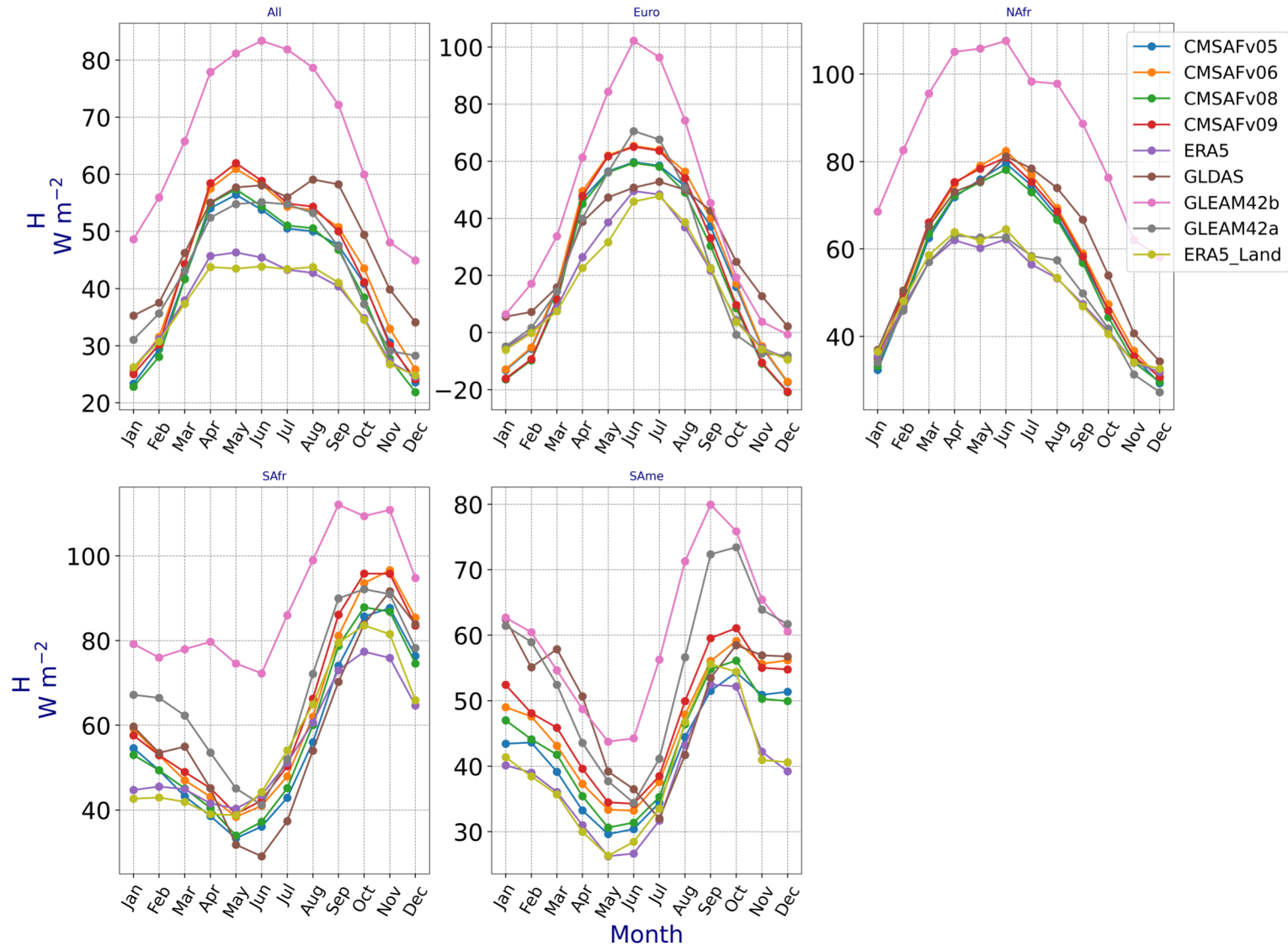
Mean annual cycle

Latent heat 2021

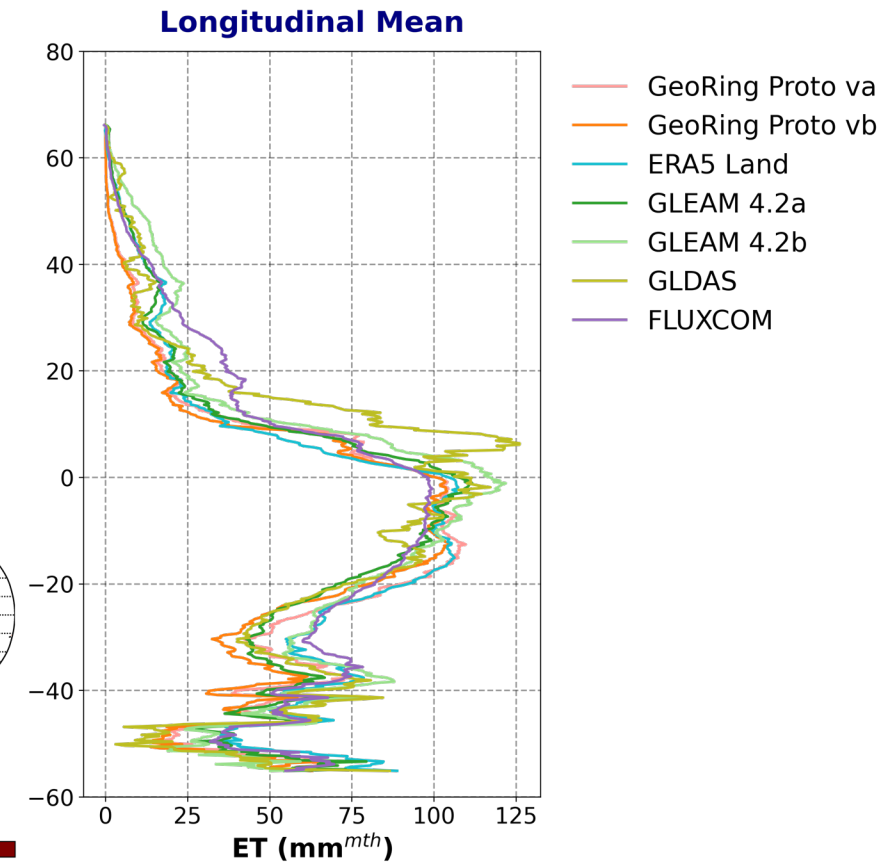
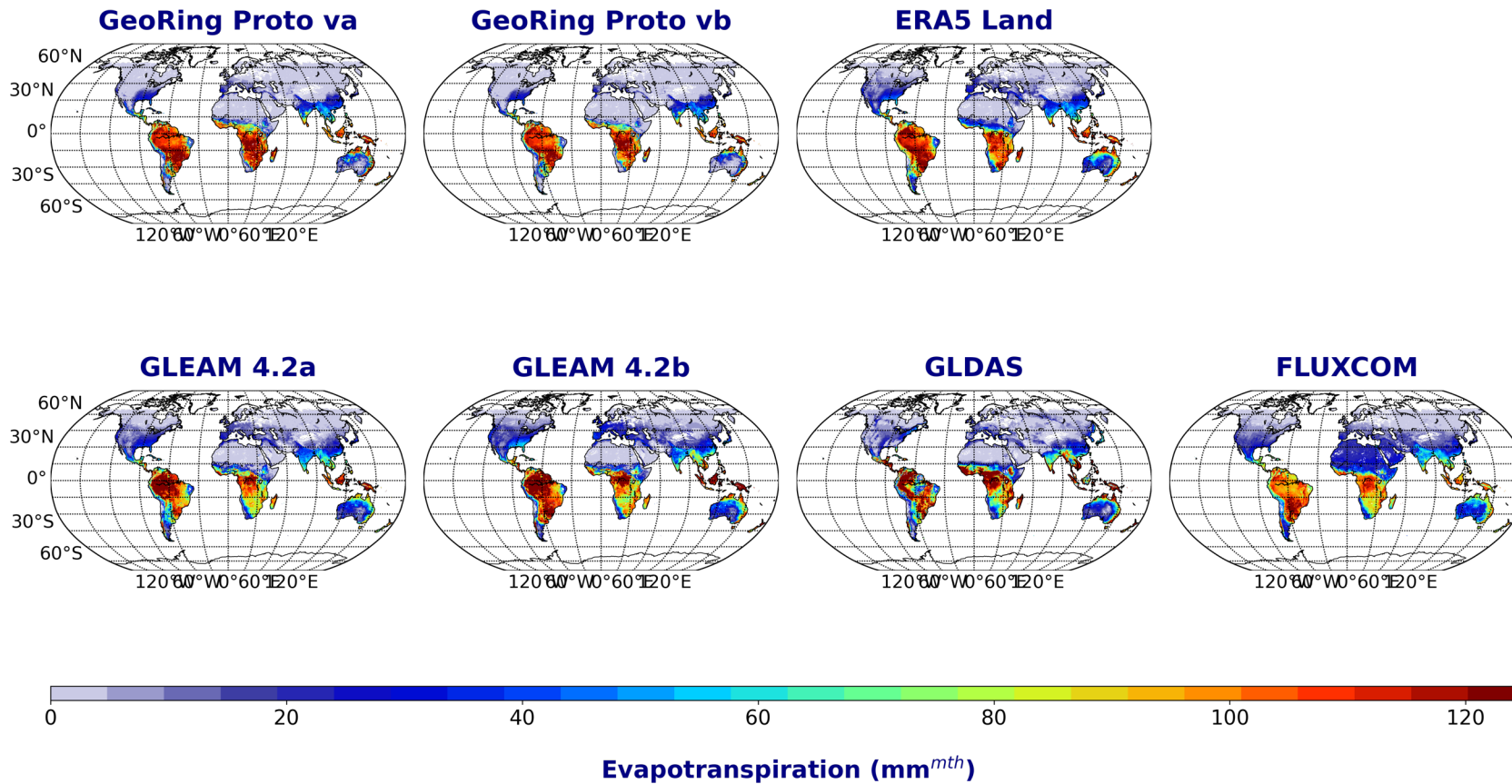


Mean annual cycle

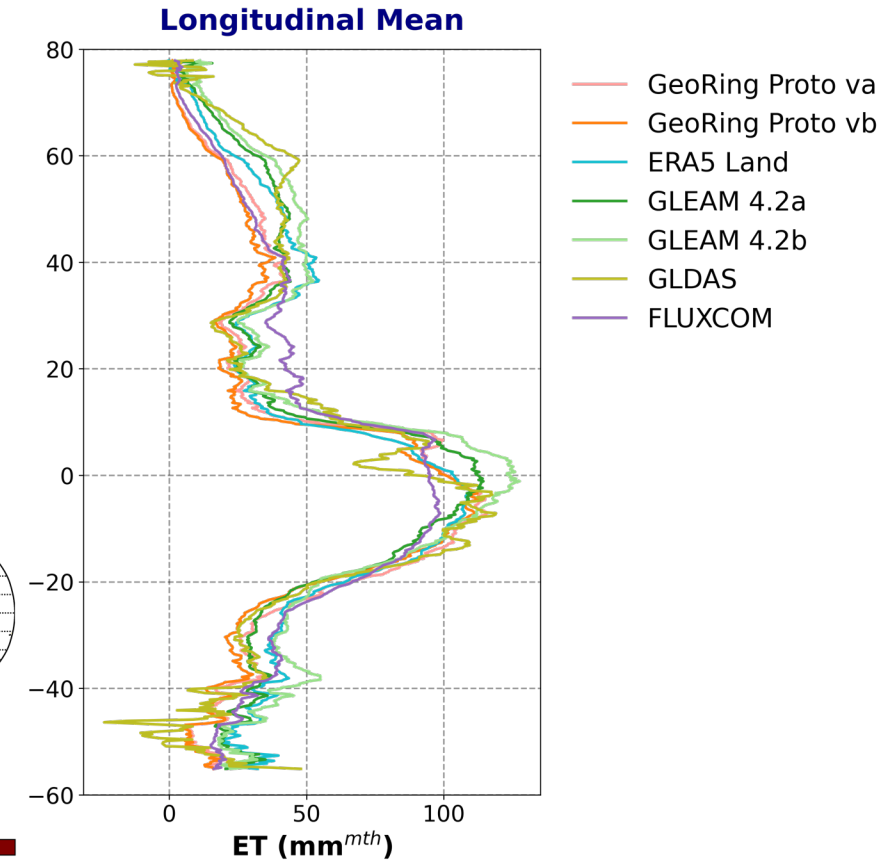
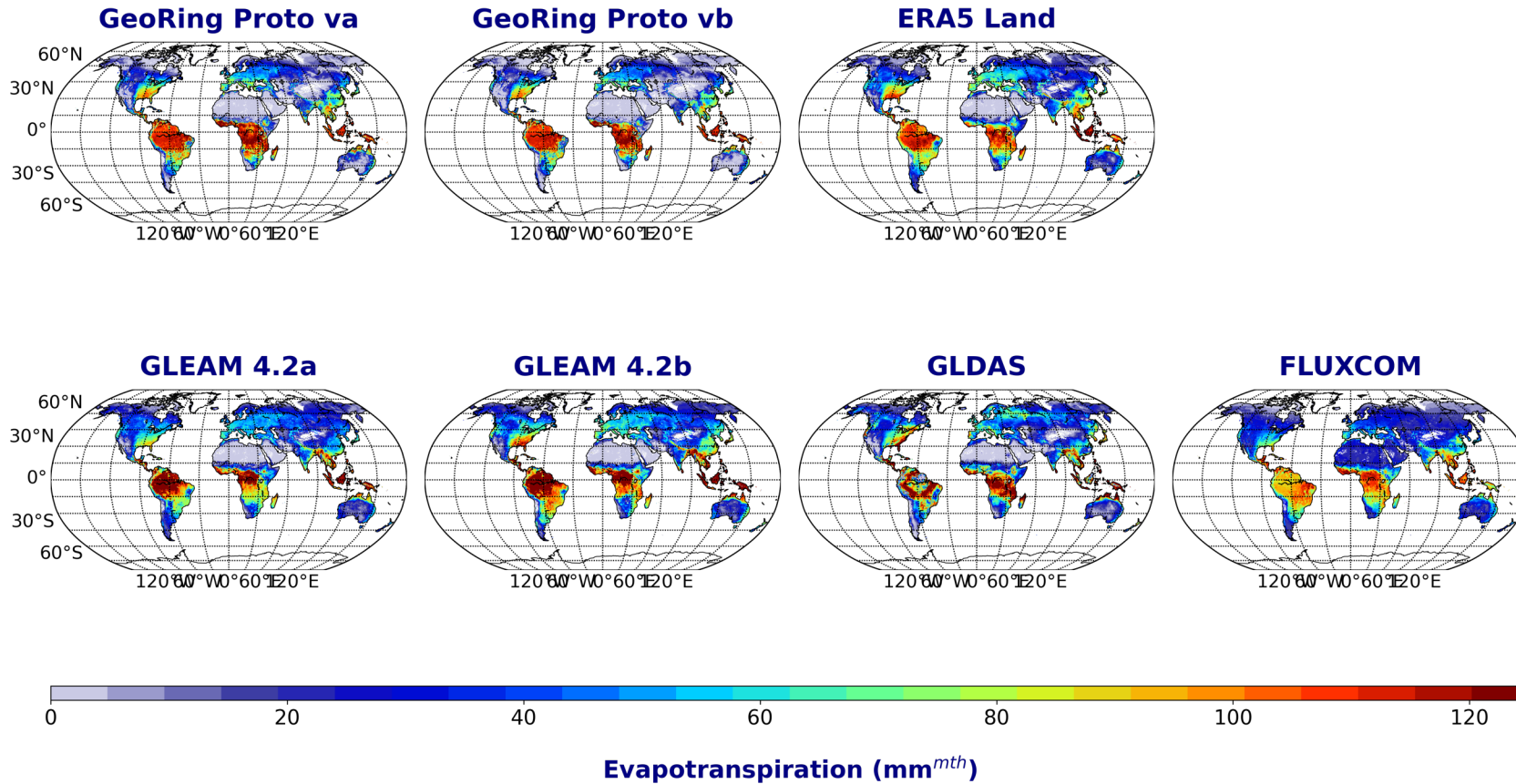
Sensible heat 2021



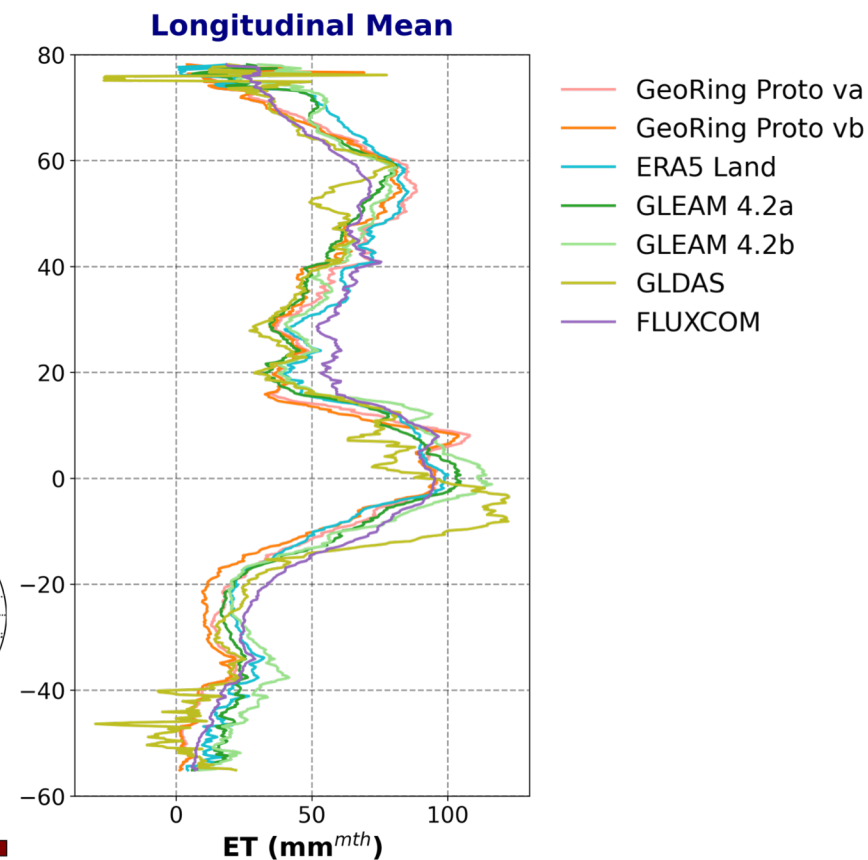
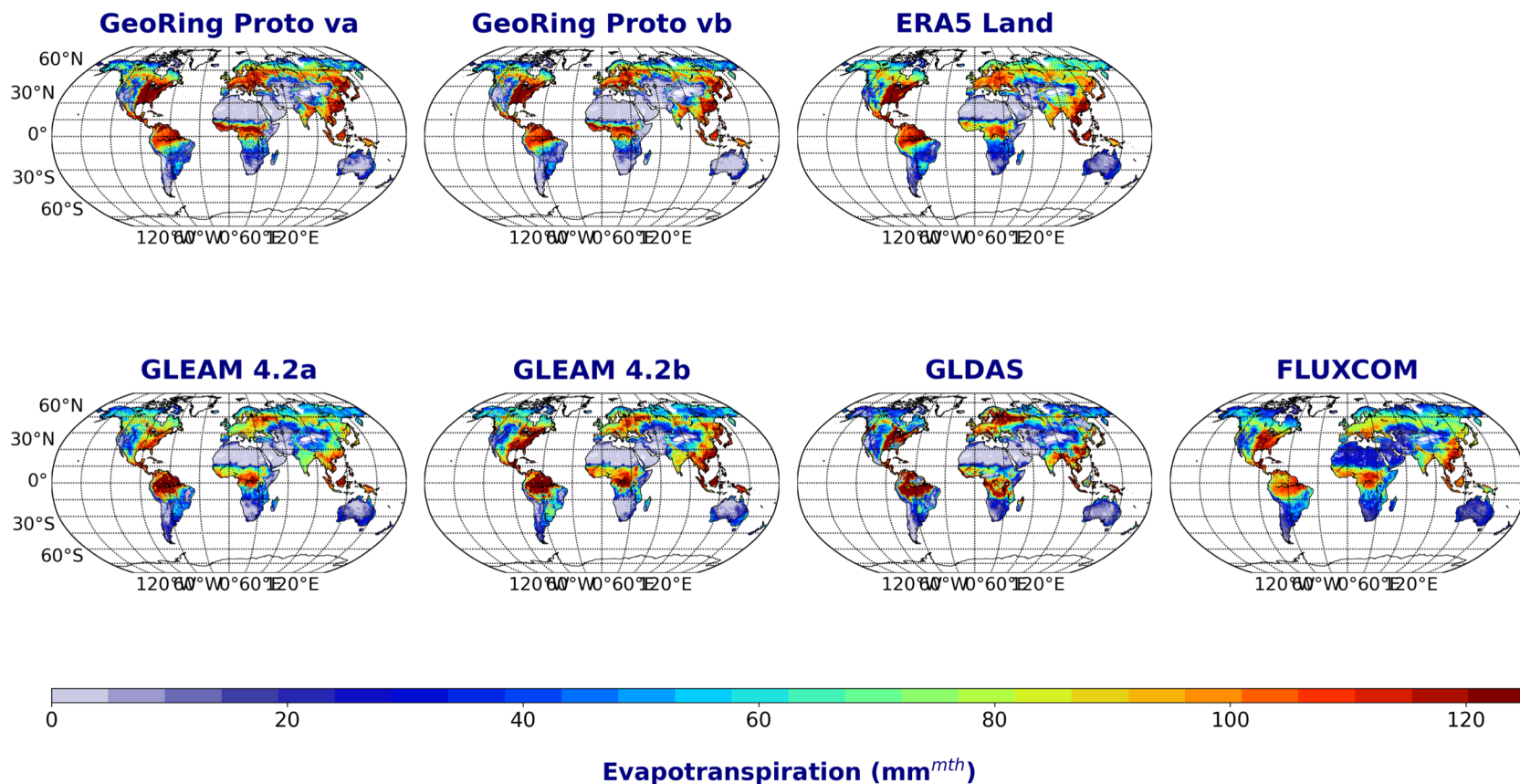
DJF



MAM



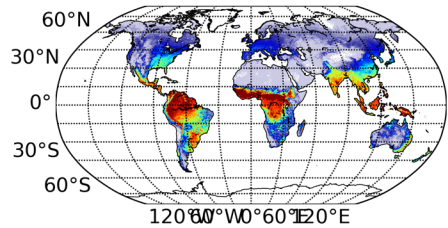
JJA



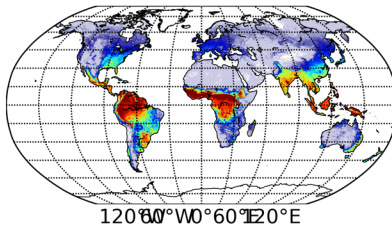
- Successfully capture the expected global spatial patterns
- Demonstrate consistency with established reference datasets
- Exhibit localized higher values around 10°N (*investigation ongoing*)

SON

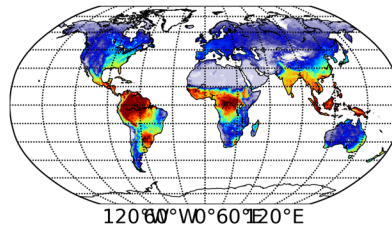
GeoRing Proto va



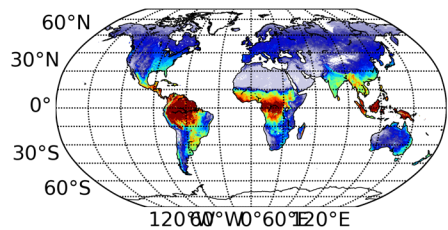
GeoRing Proto vb



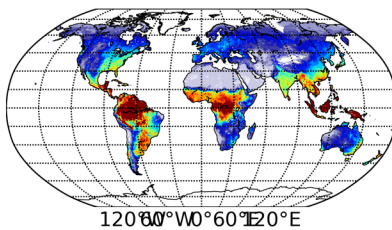
ERA5 Land



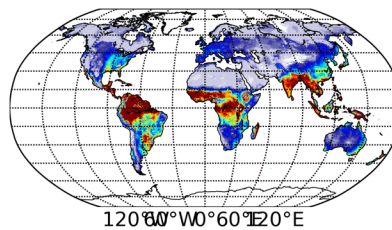
GLEAM 4.2a



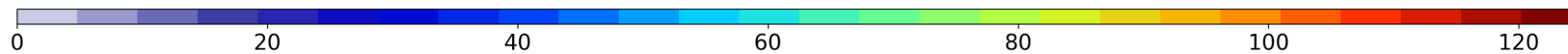
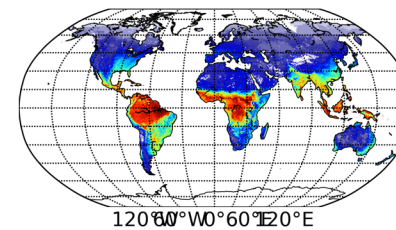
GLEAM 4.2b



GLDAS

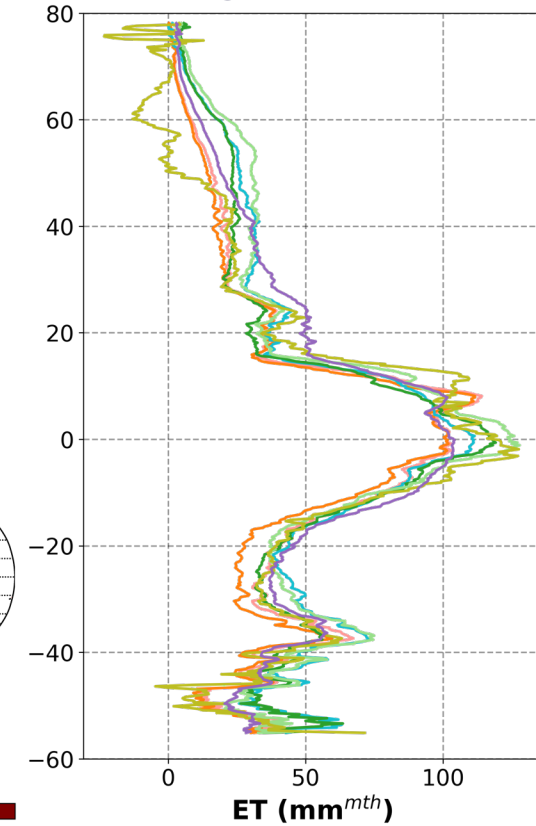


FLUXCOM



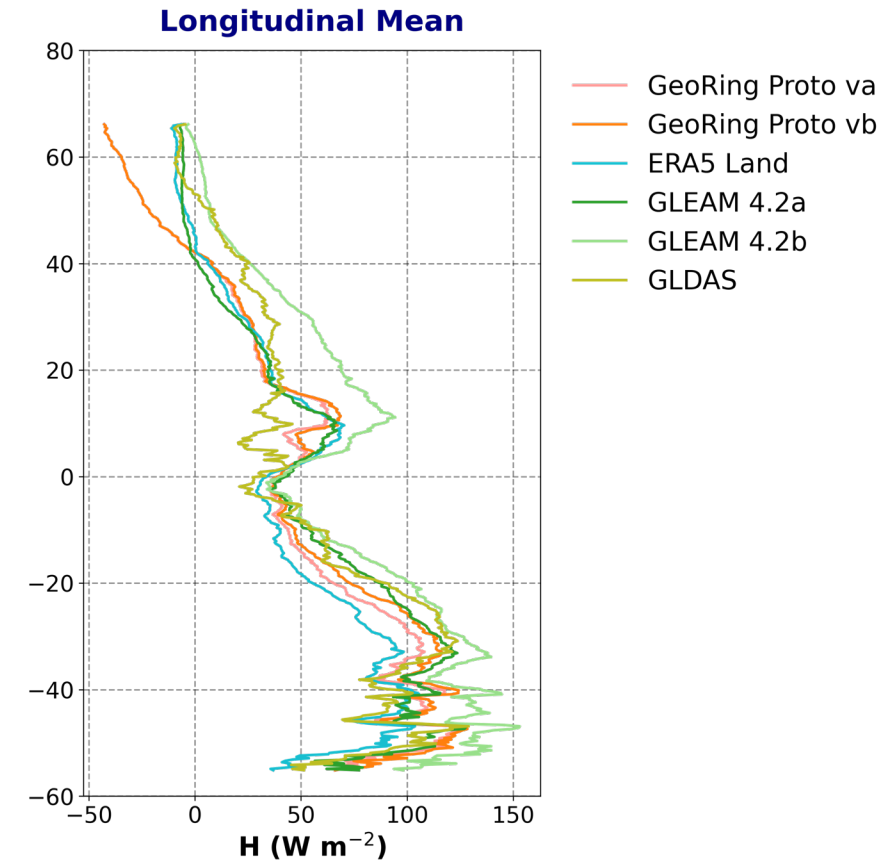
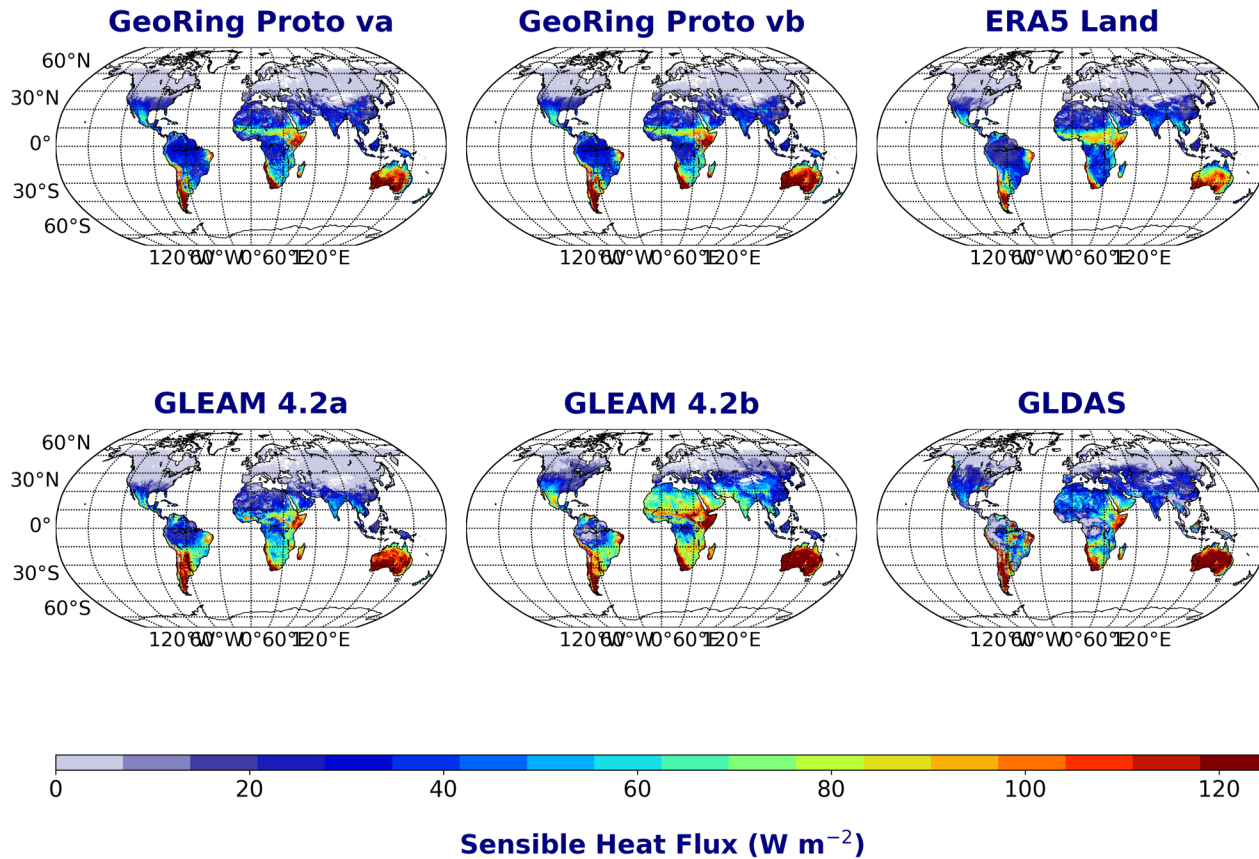
Evapotranspiration (mm^{month})

Longitudinal Mean

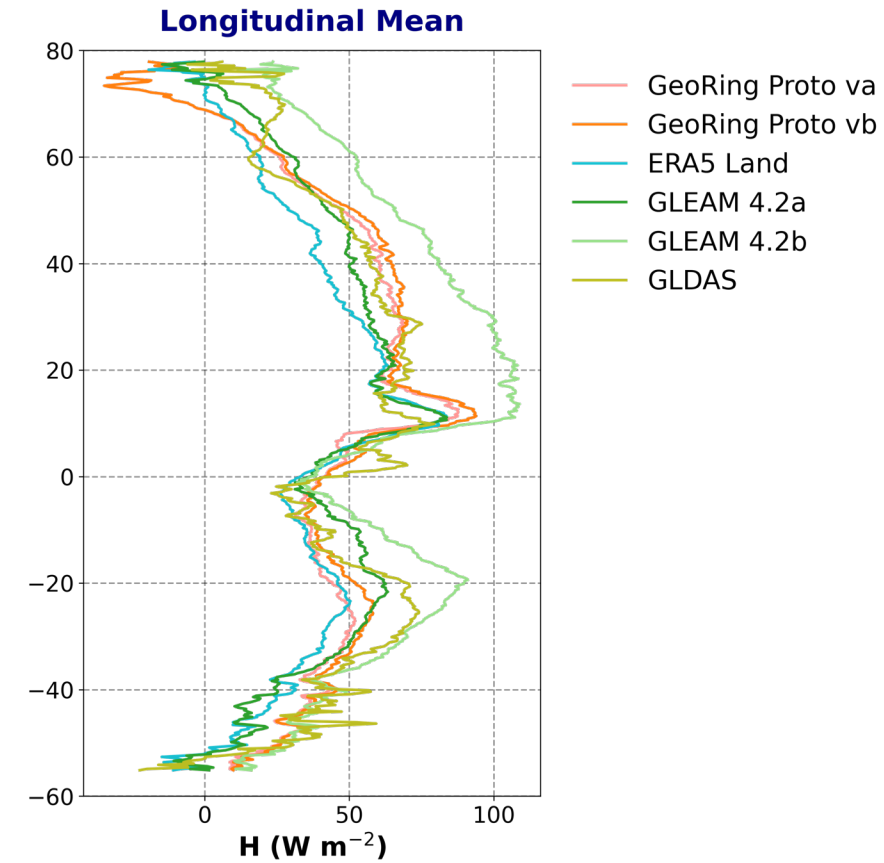
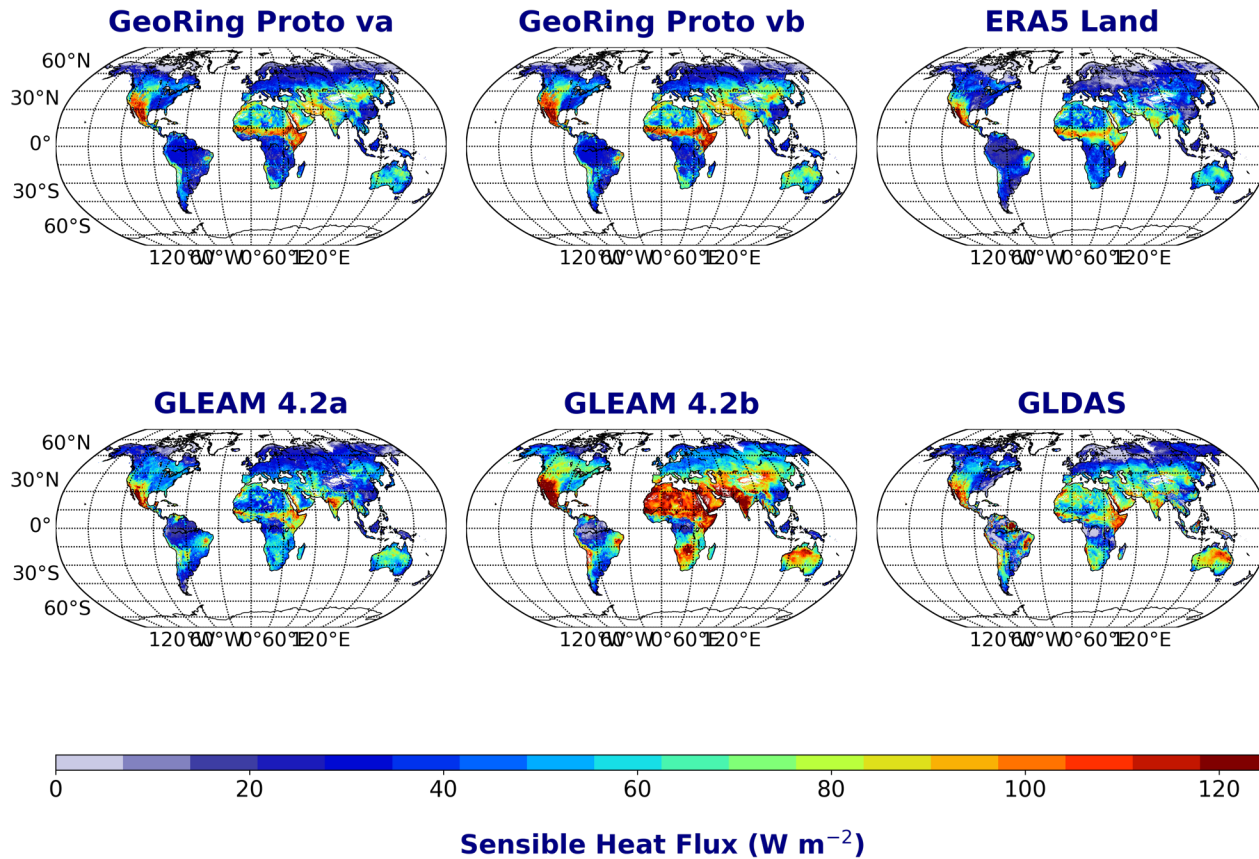


- GeoRing Proto va
- GeoRing Proto vb
- ERA5 Land
- GLEAM 4.2a
- GLEAM 4.2b
- GLDAS
- FLUXCOM

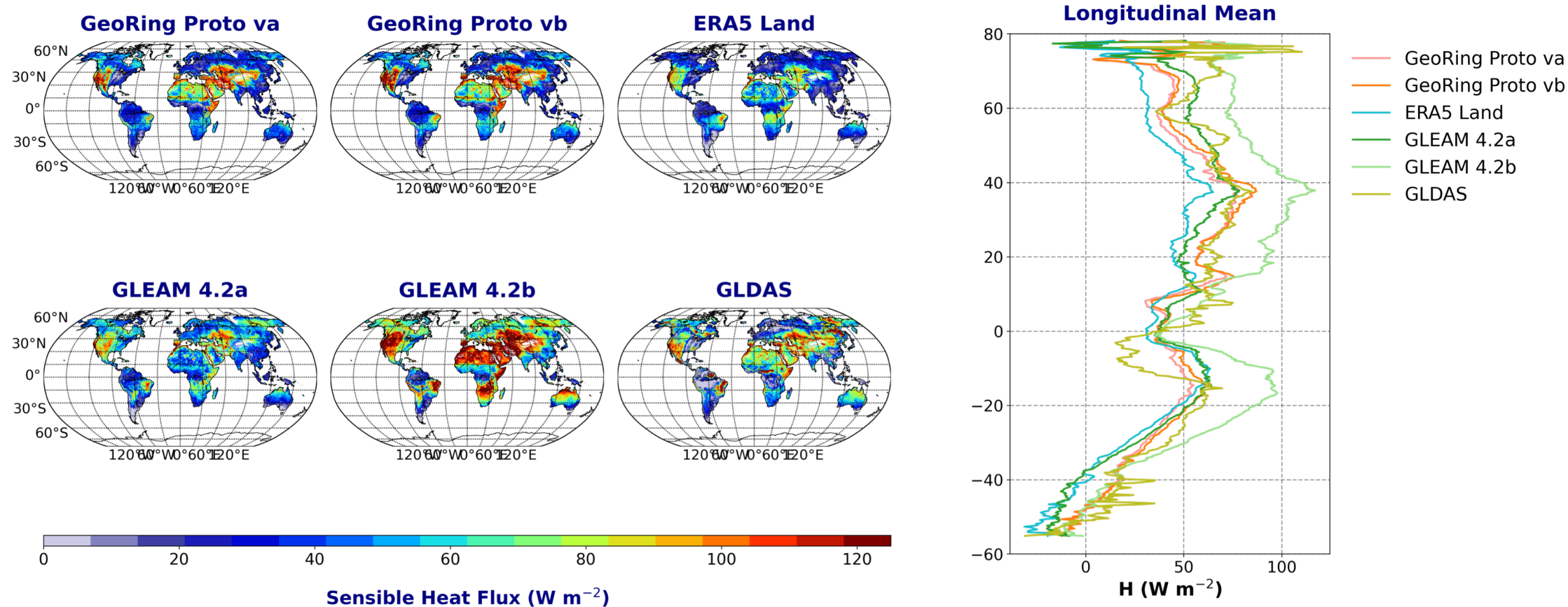
DJF



MAM

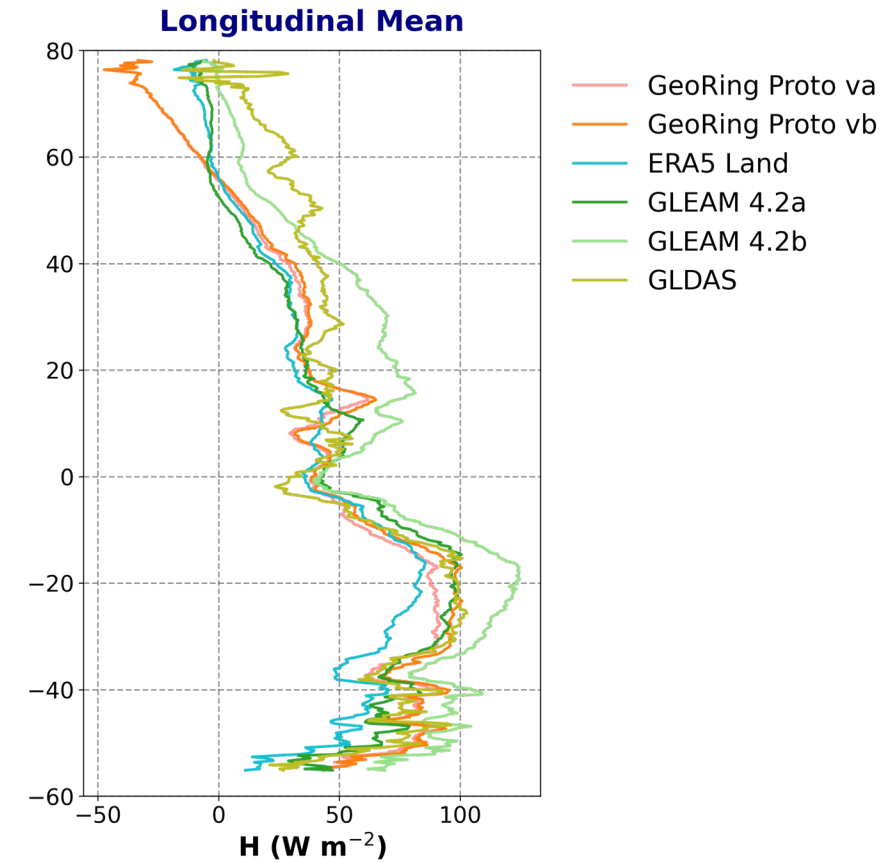
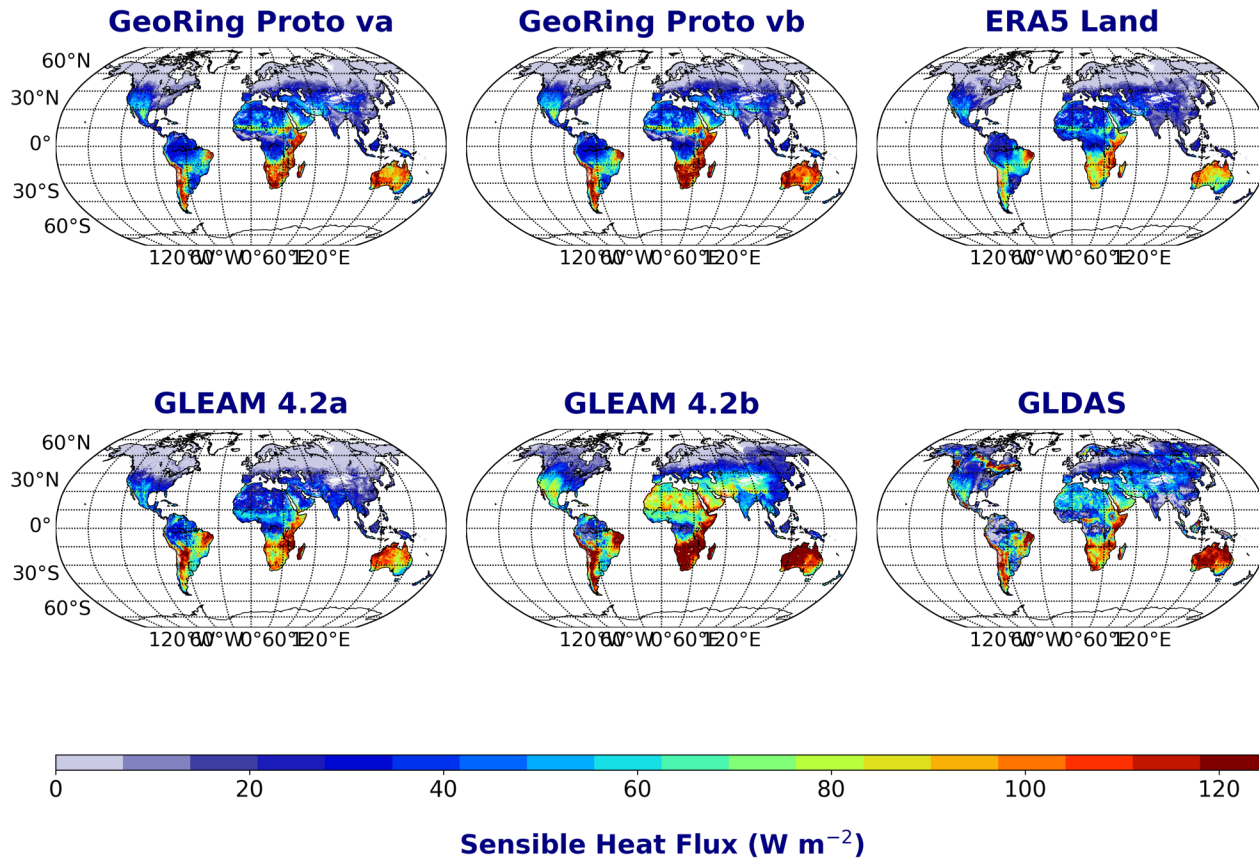


JJA



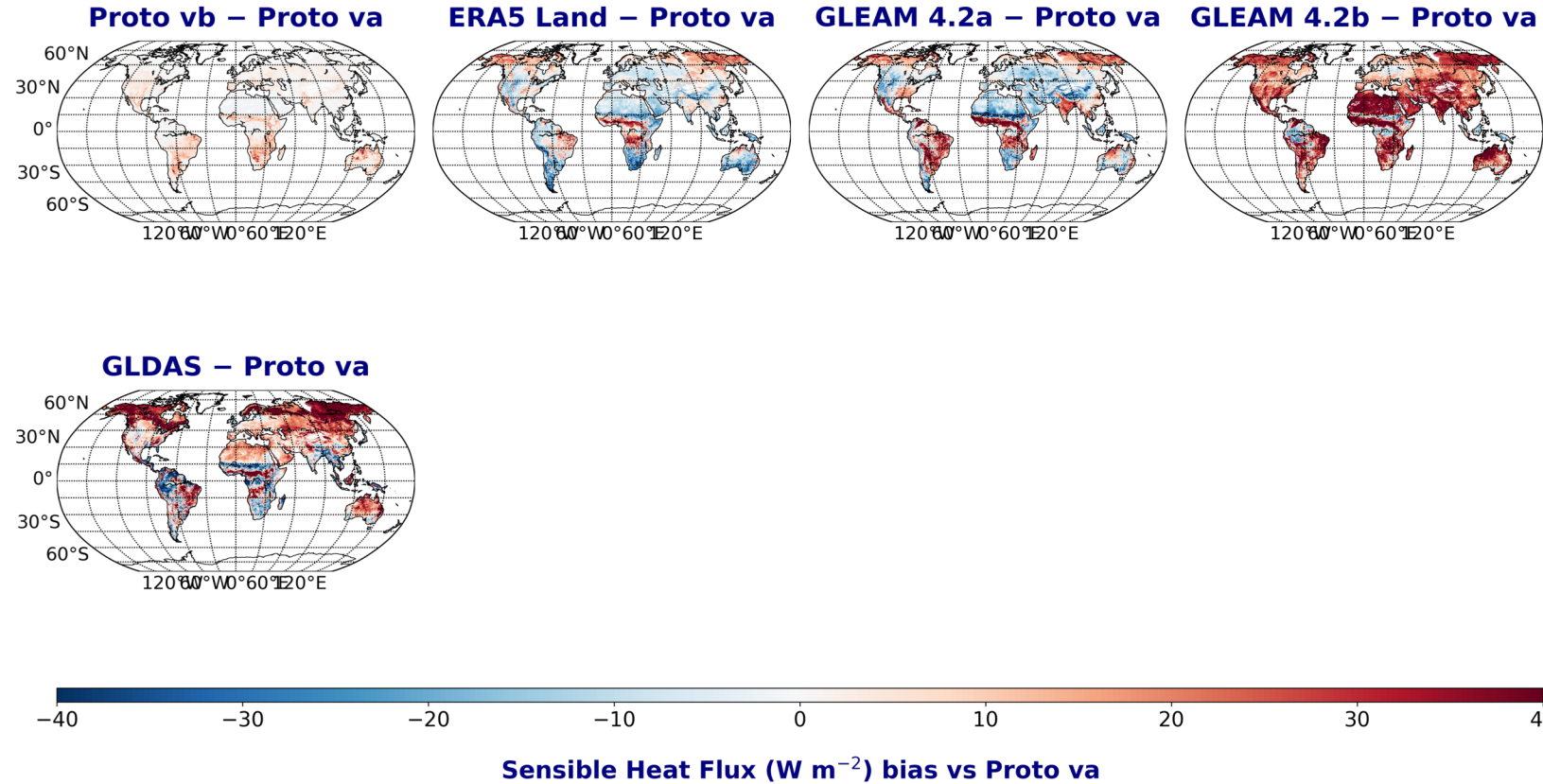
- Successfully capture the expected global spatial patterns.
- Exhibit higher variability and a wider spread across all reference datasets.
- Fall within the ensemble range.

SON

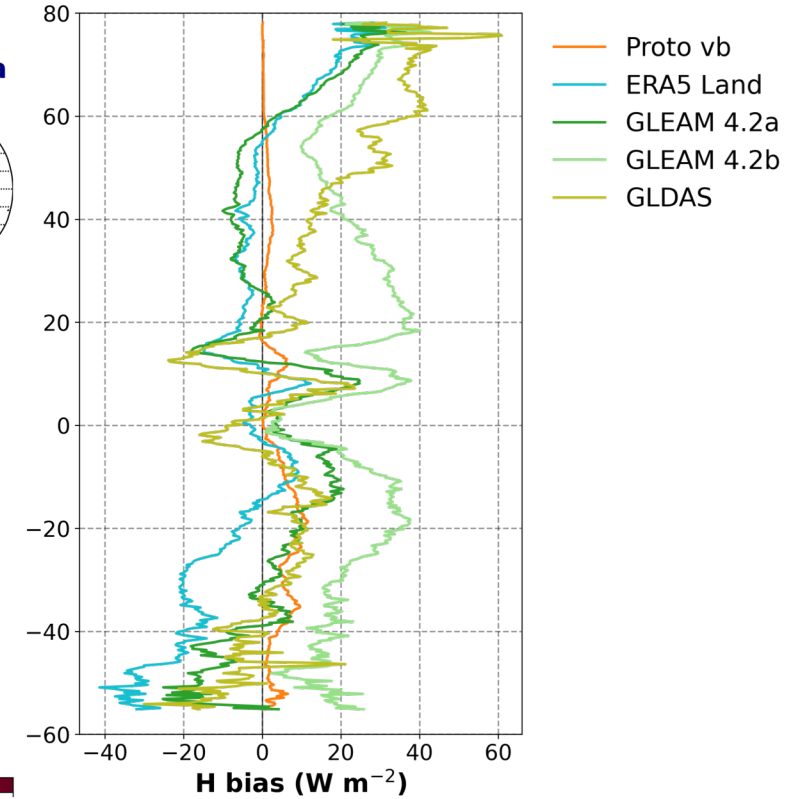


“Bias”

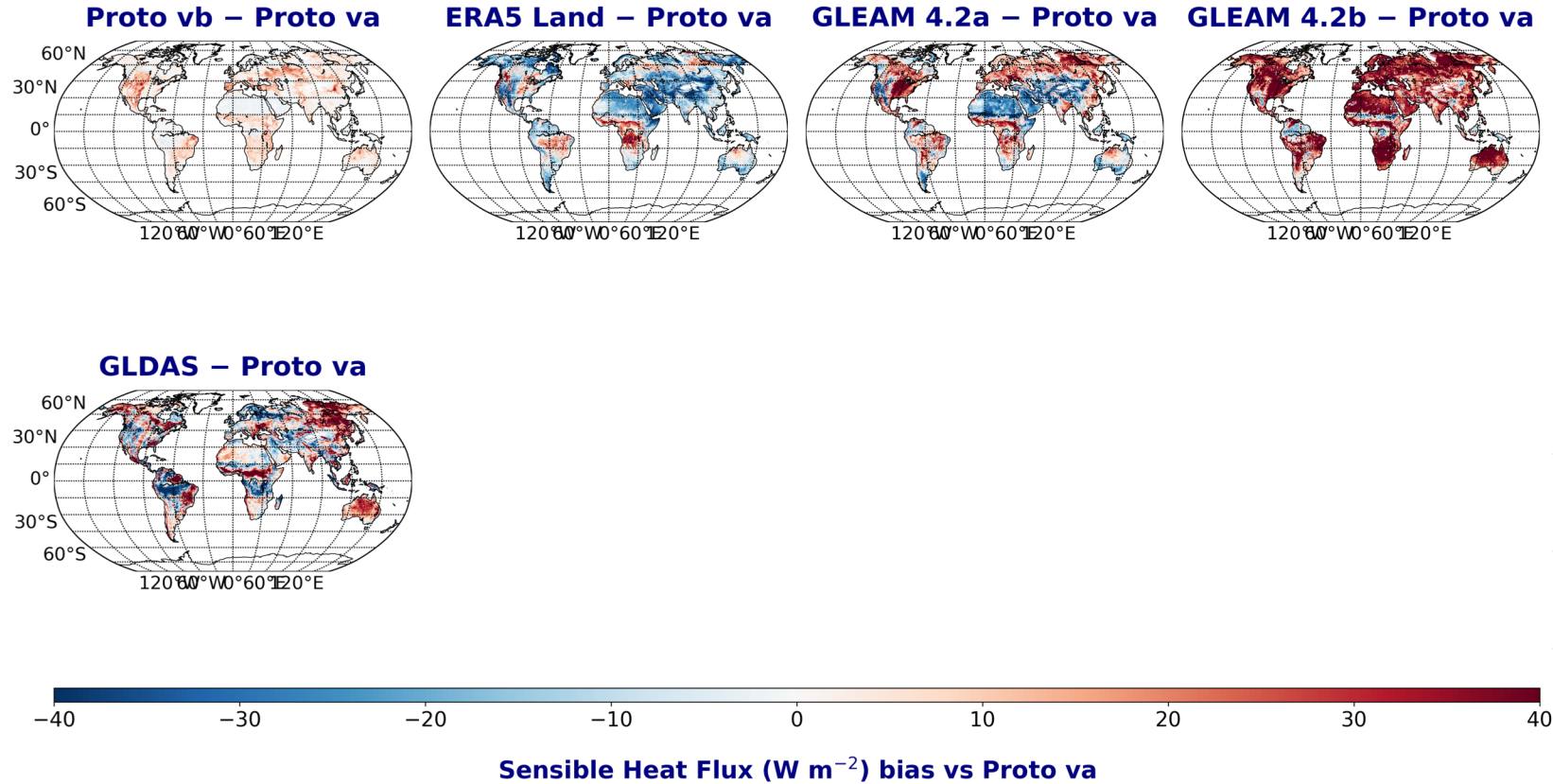
SON



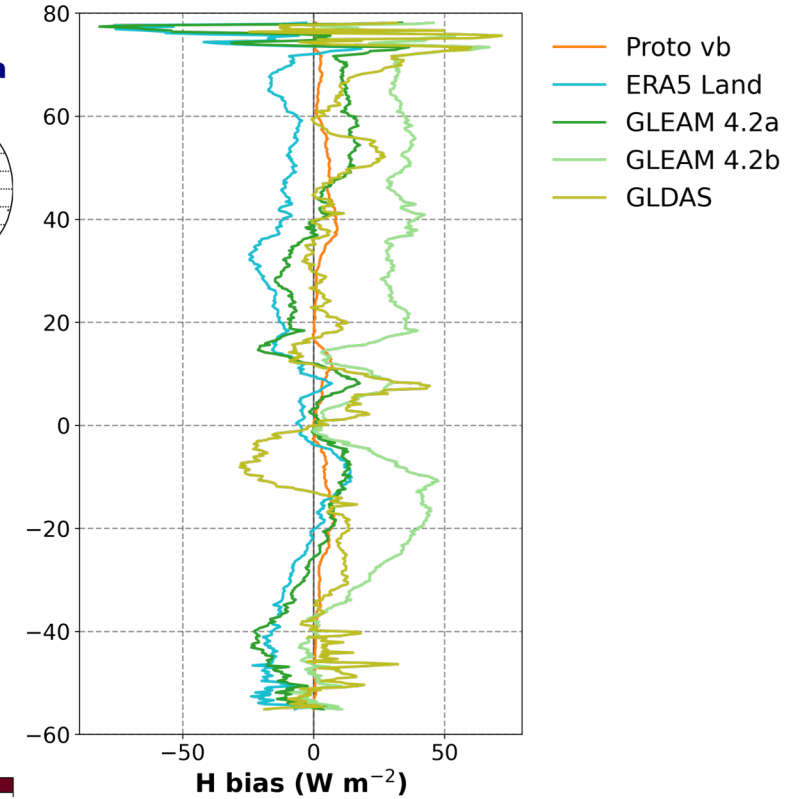
**Longitudinal Mean Bias
(vs Proto va)**



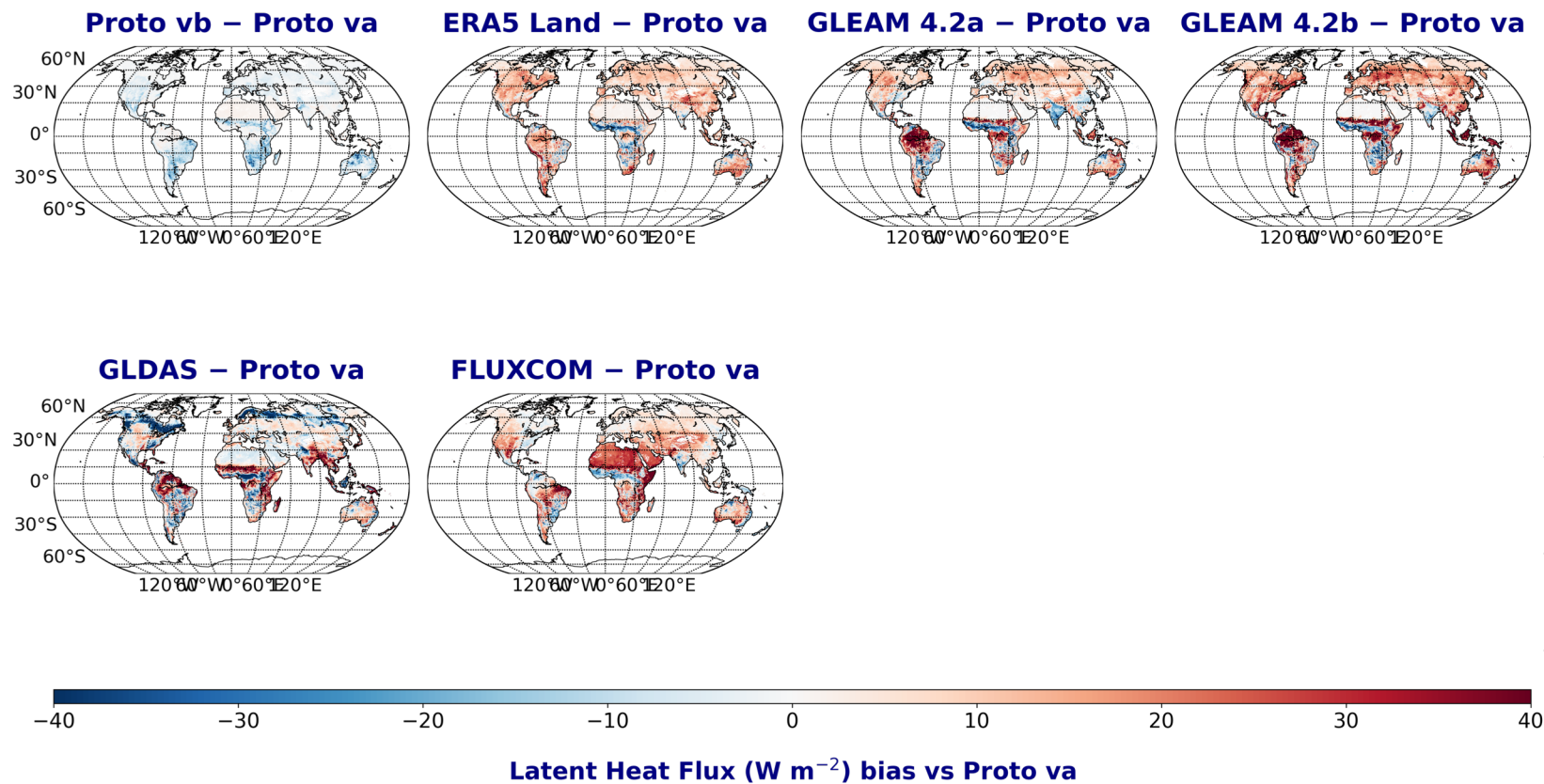
JJA



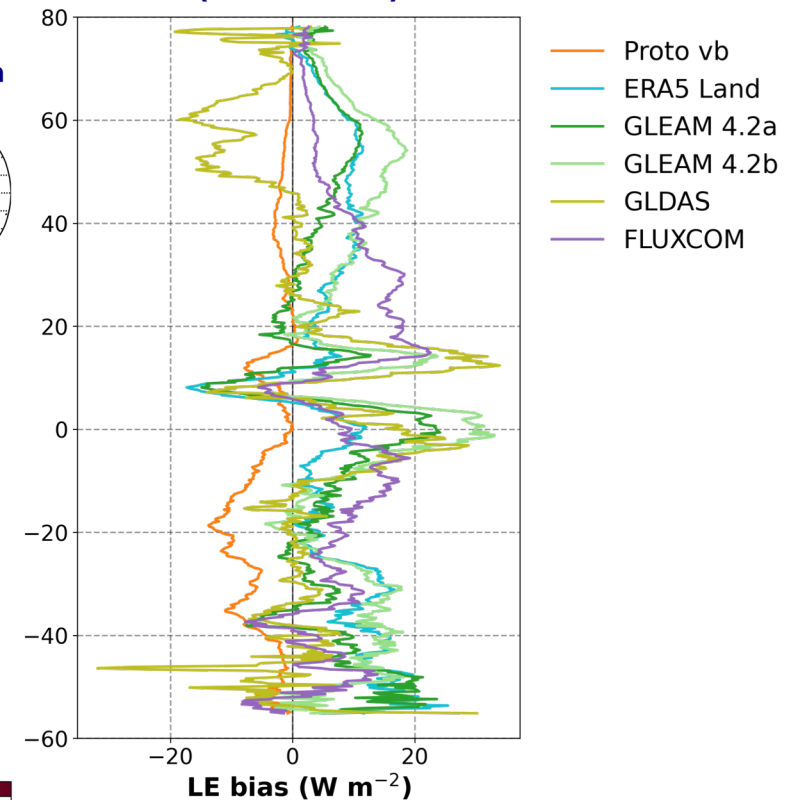
**Longitudinal Mean Bias
(vs Proto va)**



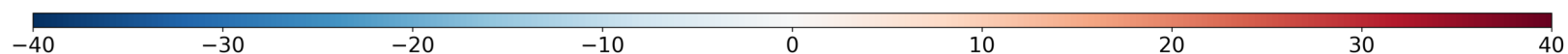
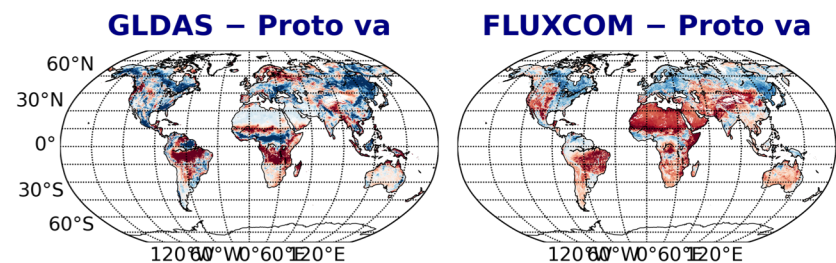
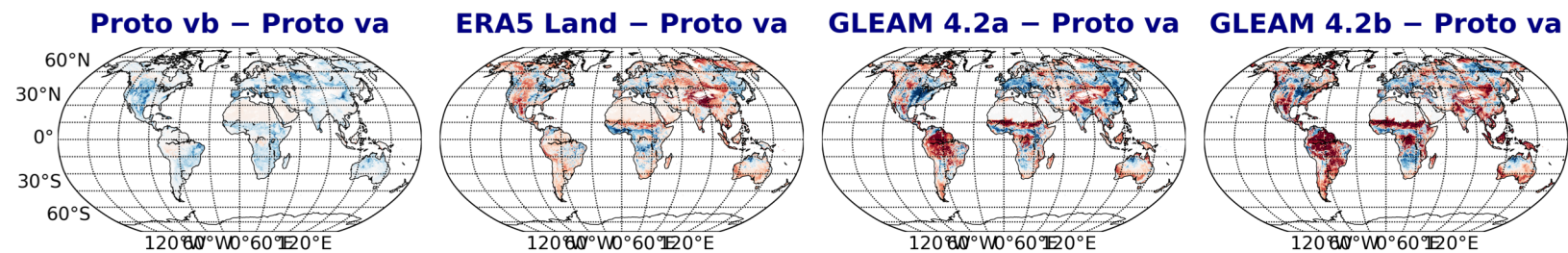
SON



Longitudinal Mean Bias
(vs Proto va)



JJA



Latent Heat Flux (W m^{-2}) bias vs Proto va

Longitudinal Mean Bias
(vs Proto va)

