

EART60702:
Earth and Environmental Data Science
Project 2

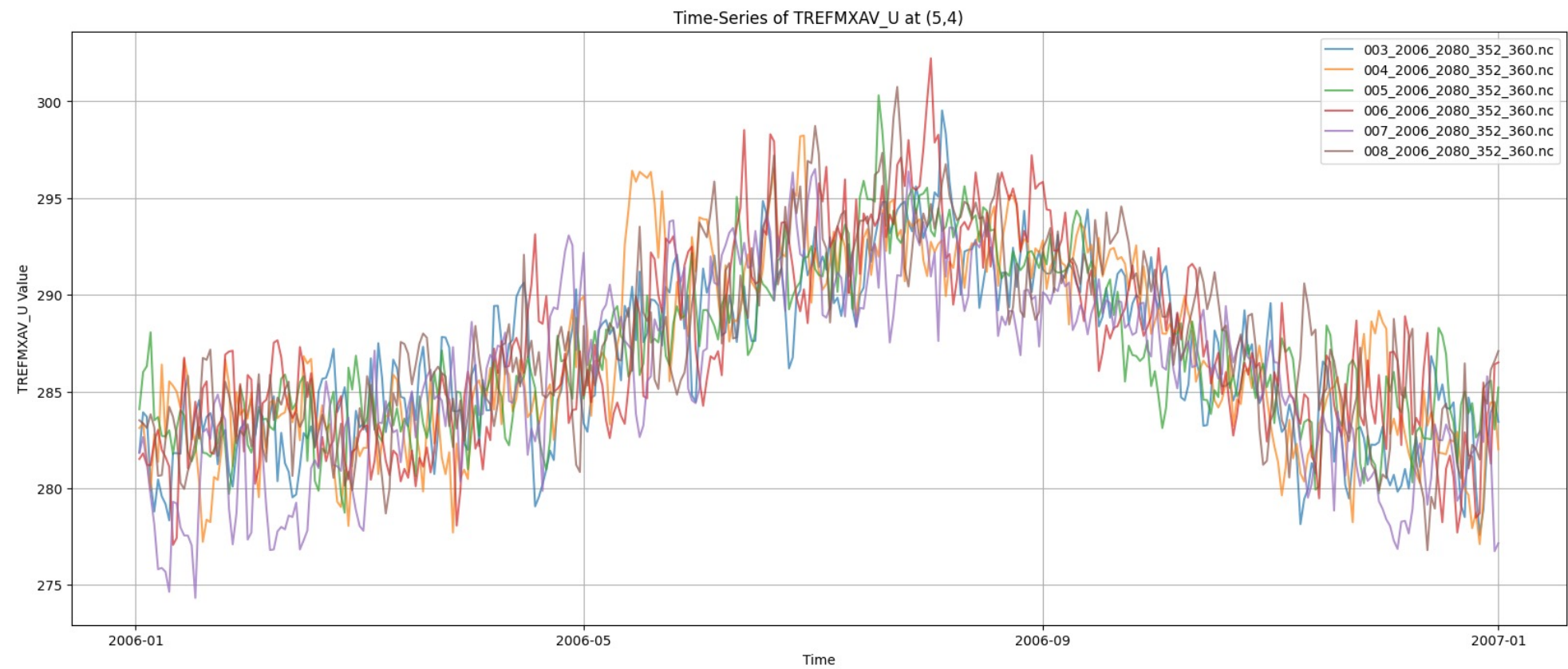
Sanghoon Choi
10327738

Data

Variable Name	Explanation
TREFMXAV_U	Urban daily maximum of average 2-m temperature
FLNS	Net longwave flux at surface
FSNS	Net solar flux at surface
PRECT	Total (convective and large-scale) precipitation rate (liq + ice)
PRSN	Snowfall_flux
QBOT	Lowest model level water vapor mixing ratio
TREFHT	Reference height temperature
UBOT	Lowest model level zonal wind
VBOT	Lowest model level meridional wind
lat	Latitude
lon	Longitude

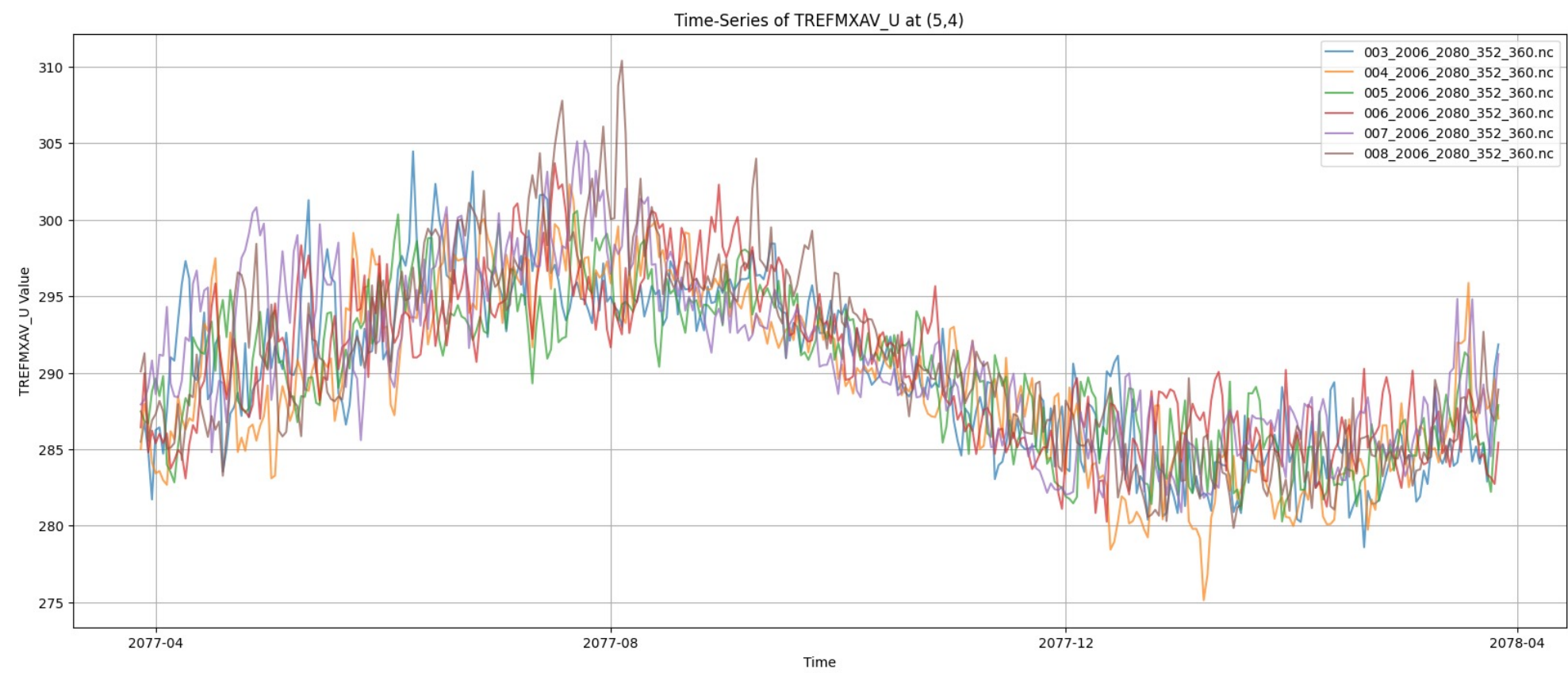
Data

2006

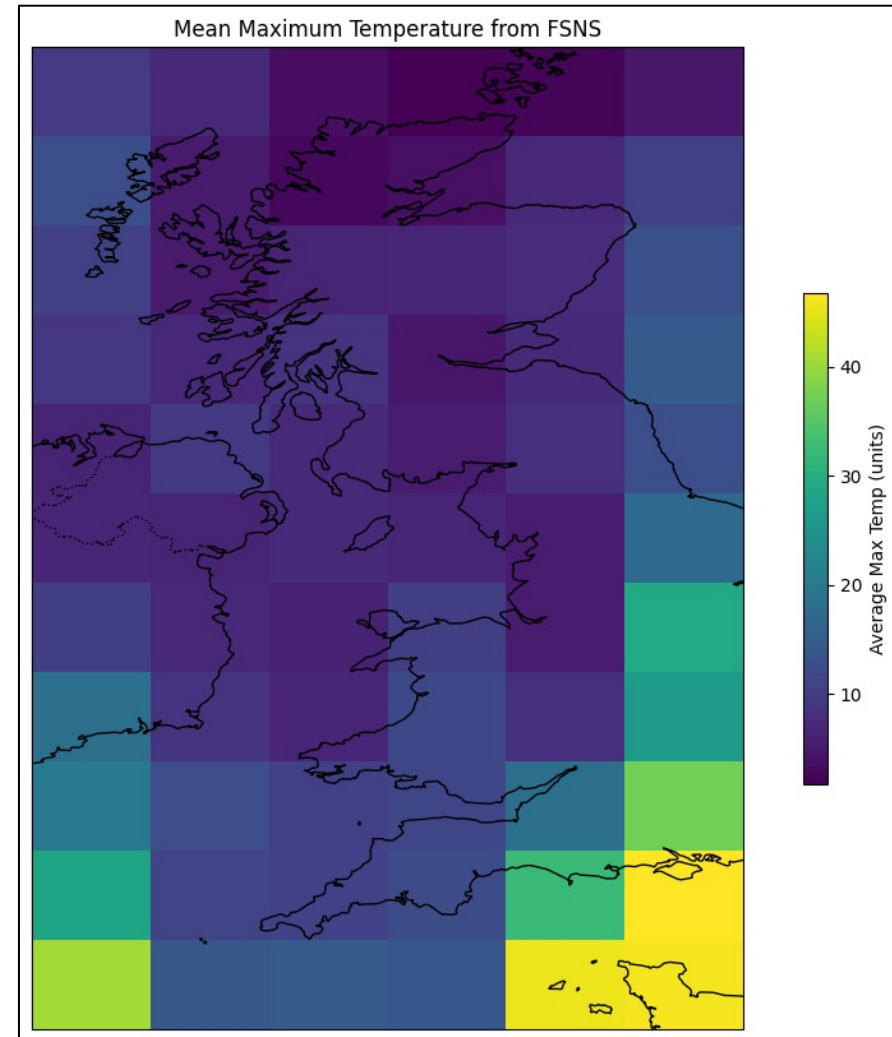
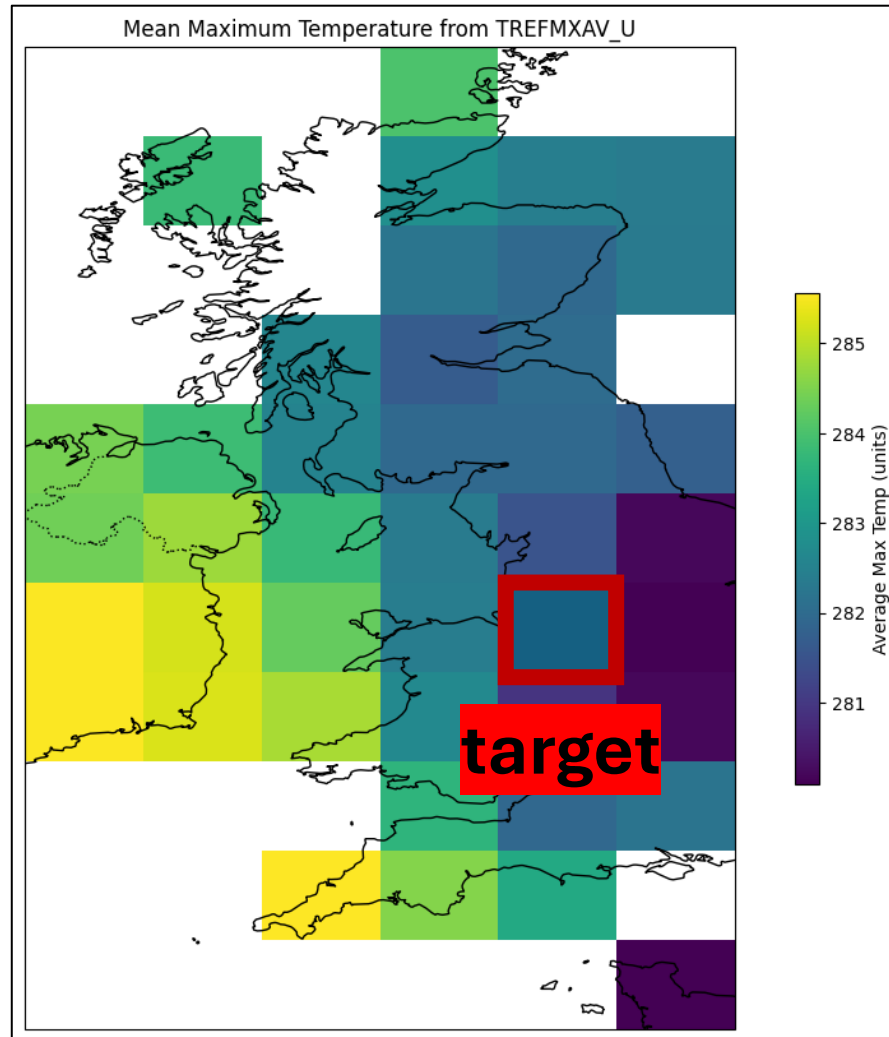


Data

2077

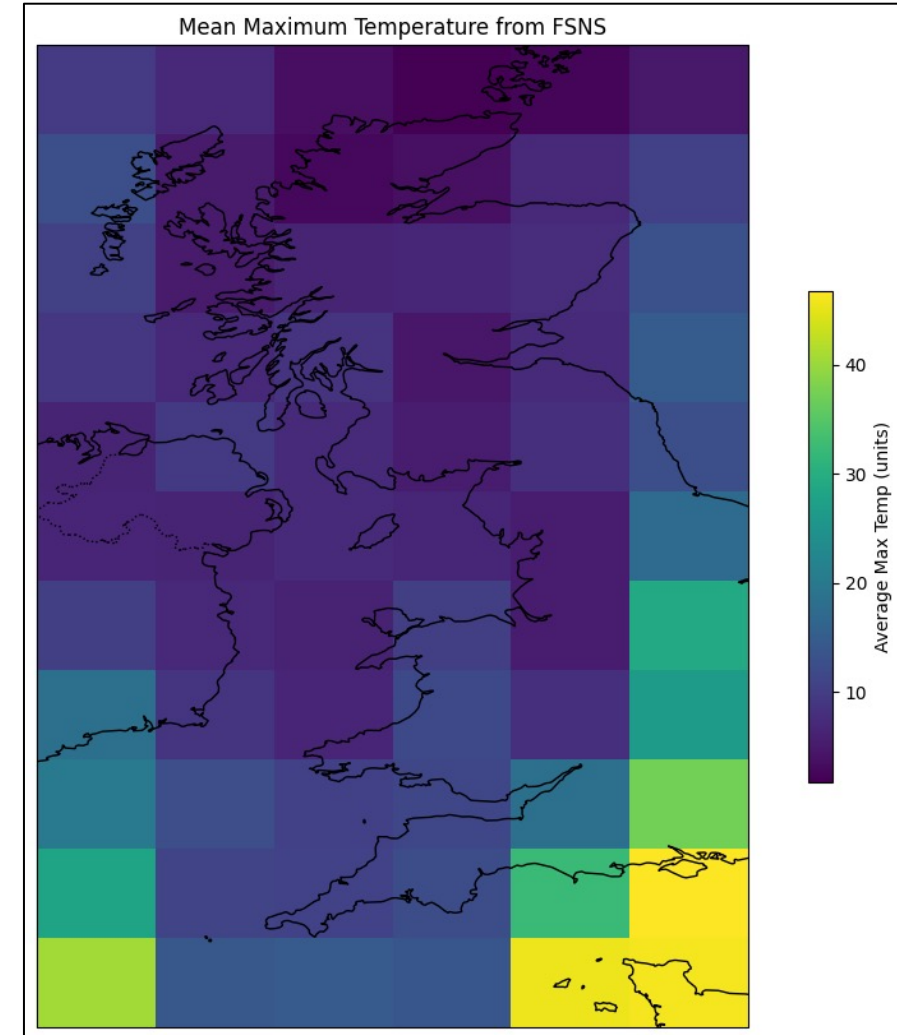
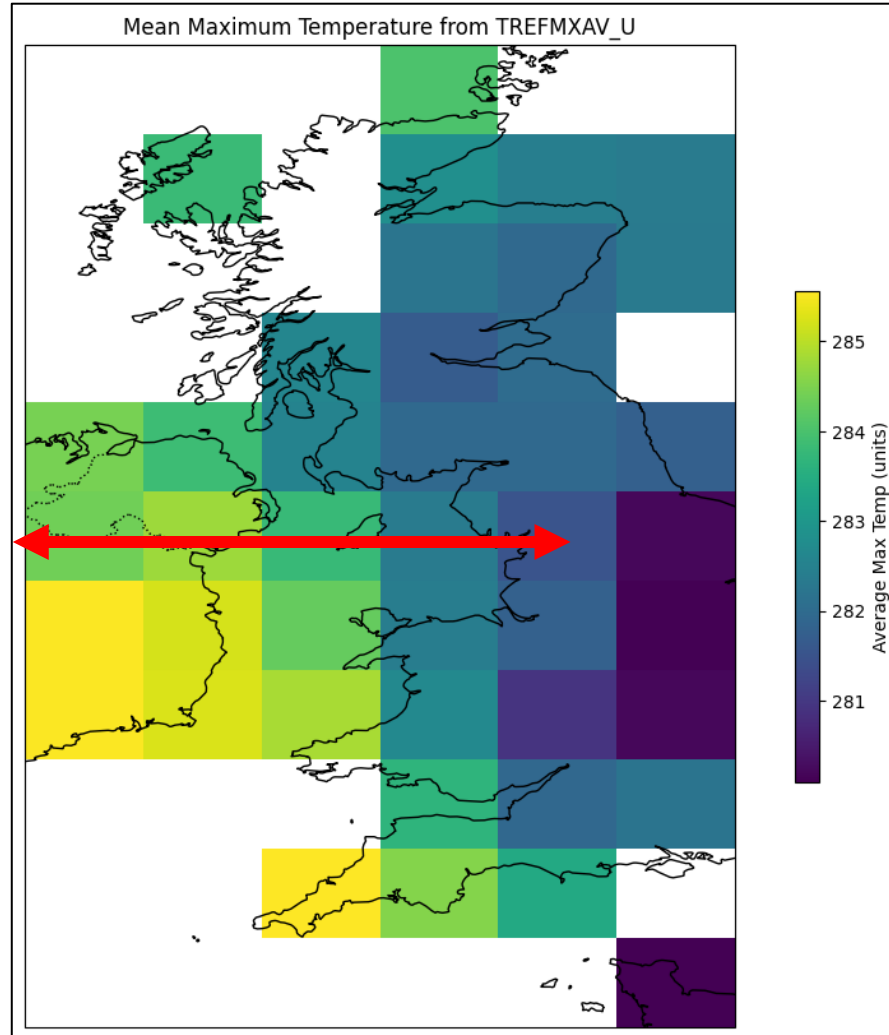


Data

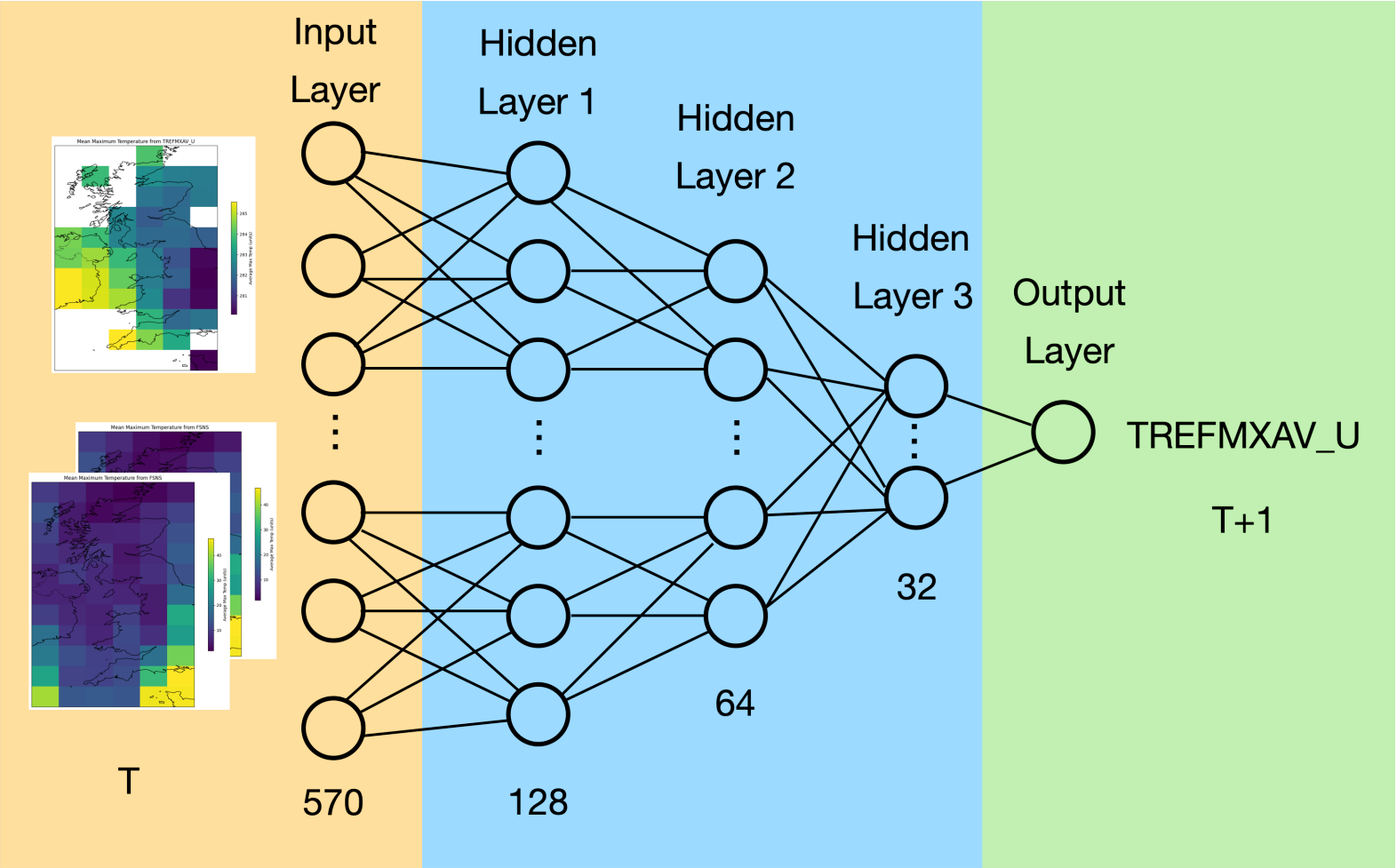


Data

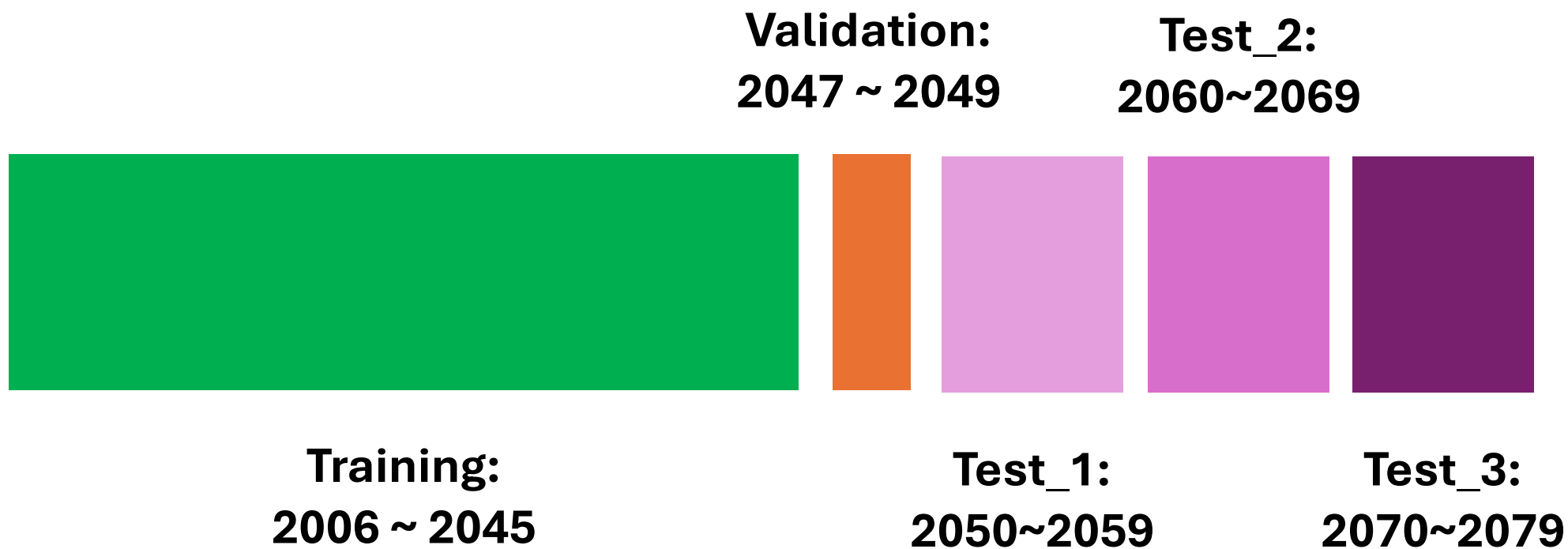
~1 day



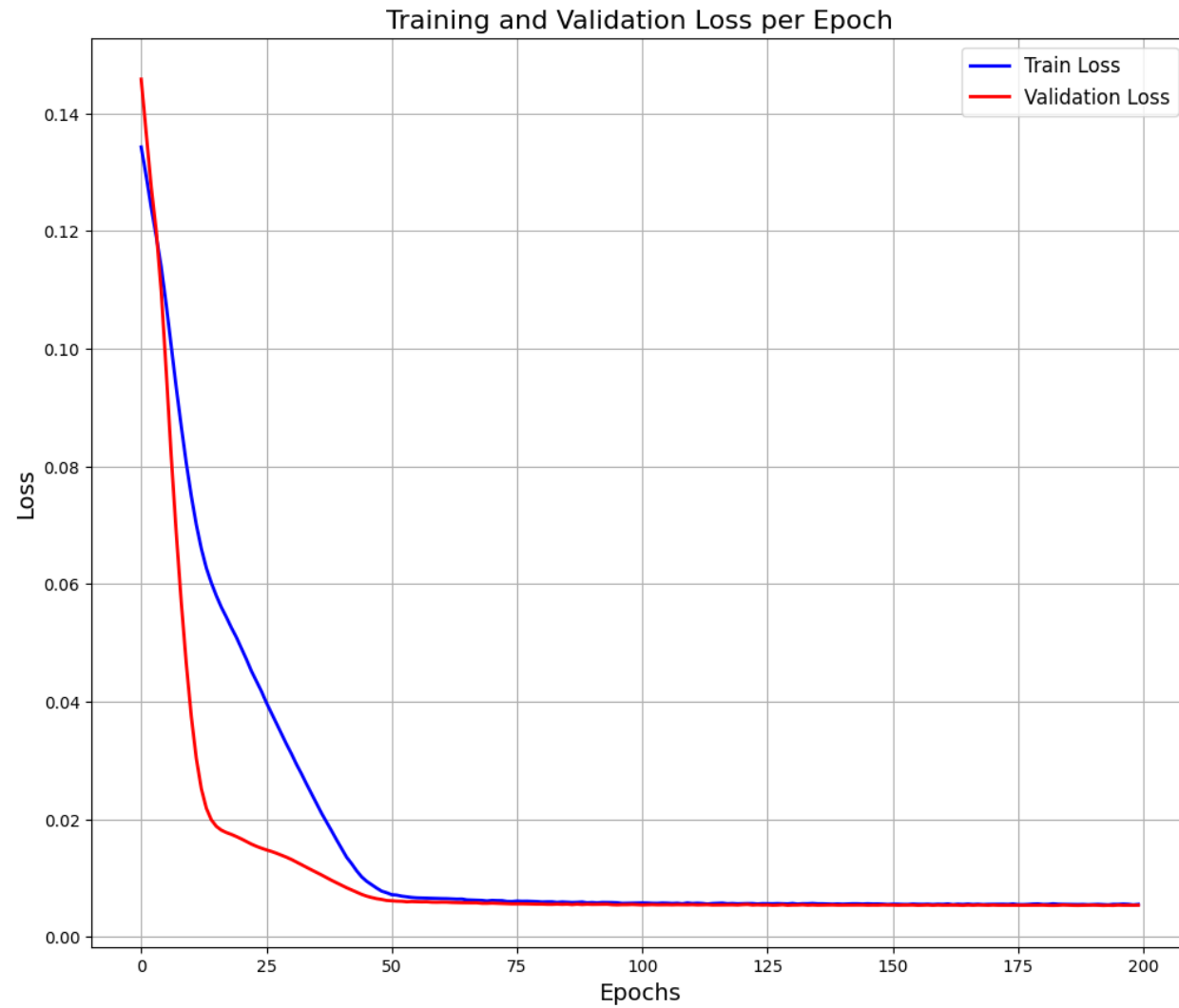
Model - DNN



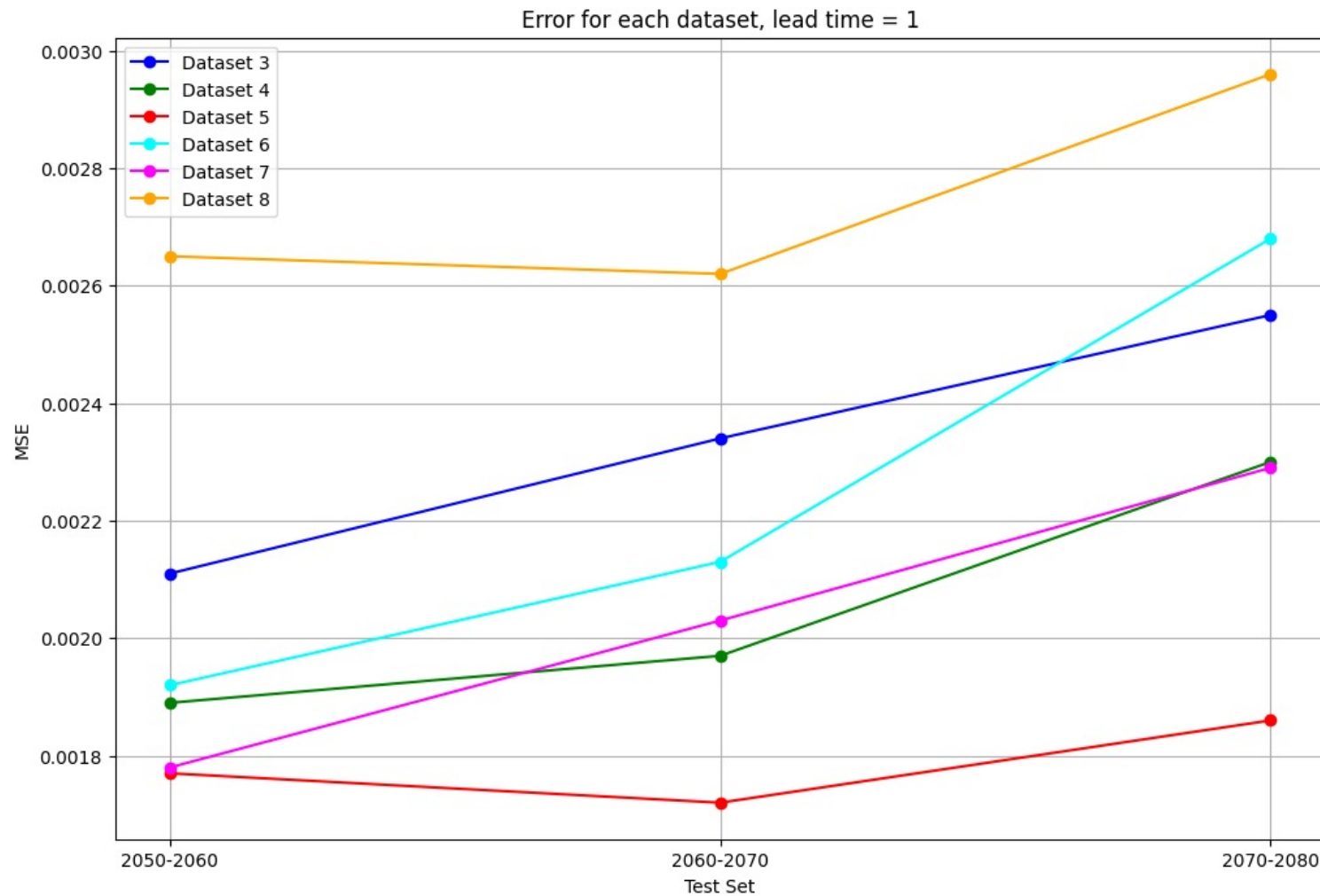
Train



Train



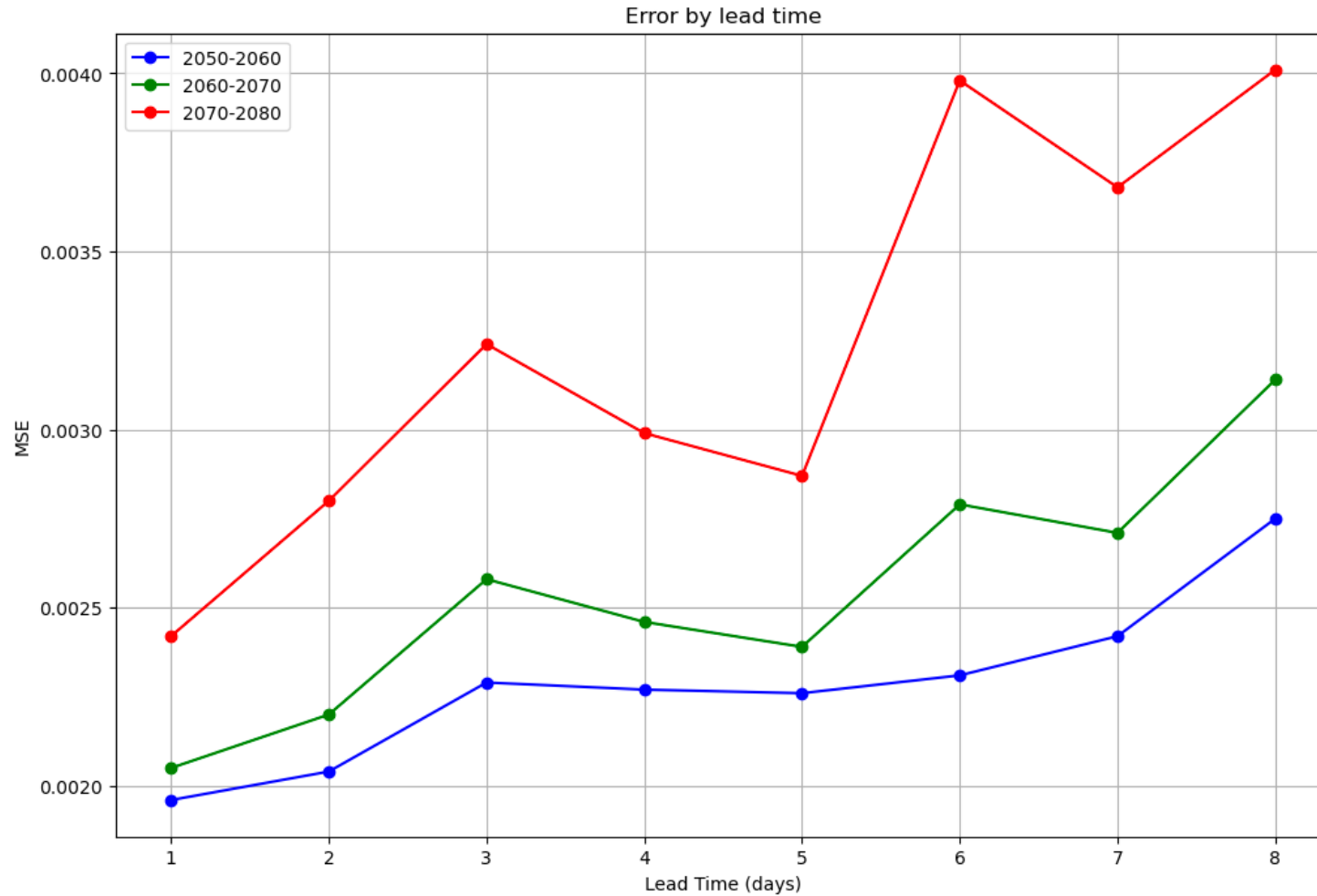
Result - 1



Each member is different.

Generally, it is harder to predict in a more future climate.

Result - 2



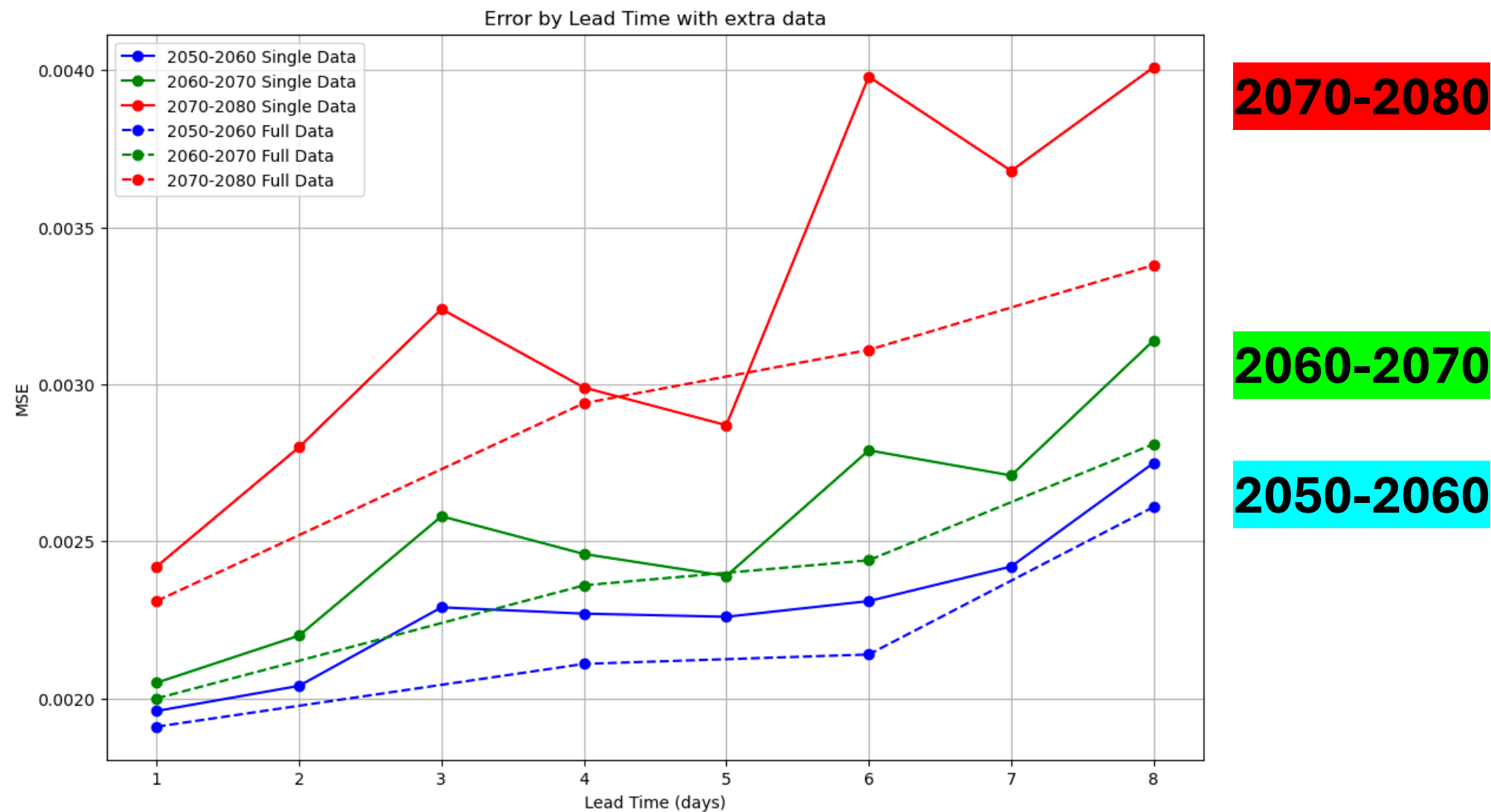
2070-2080

2060-2070

2050-2060

**Error grows as leadtime gets longer.
Harder to predict in a more future climate.**

Result - 3



2070-2080

2060-2070

2050-2060

Using multiple members for training helps.

Conclusion

- DNN approach works for TREFMXAV_U prediction
- Each ensemble member shows different prediction
- Lower performance for future climate
- Use of multiple scenarios for training was helpful