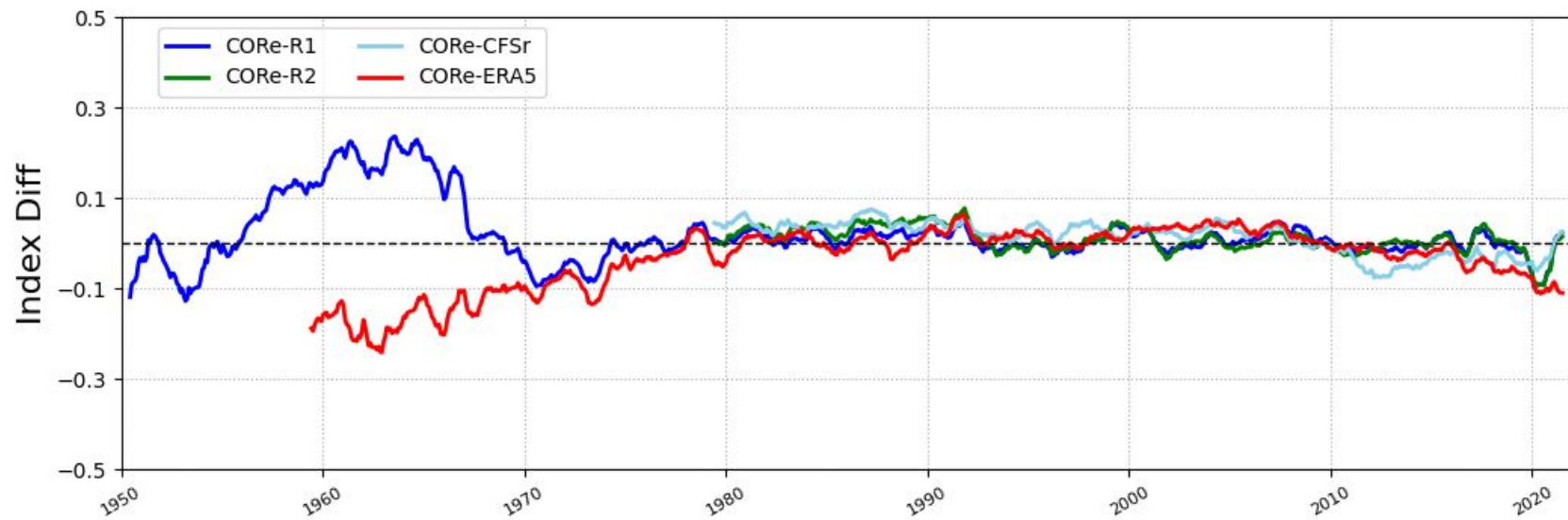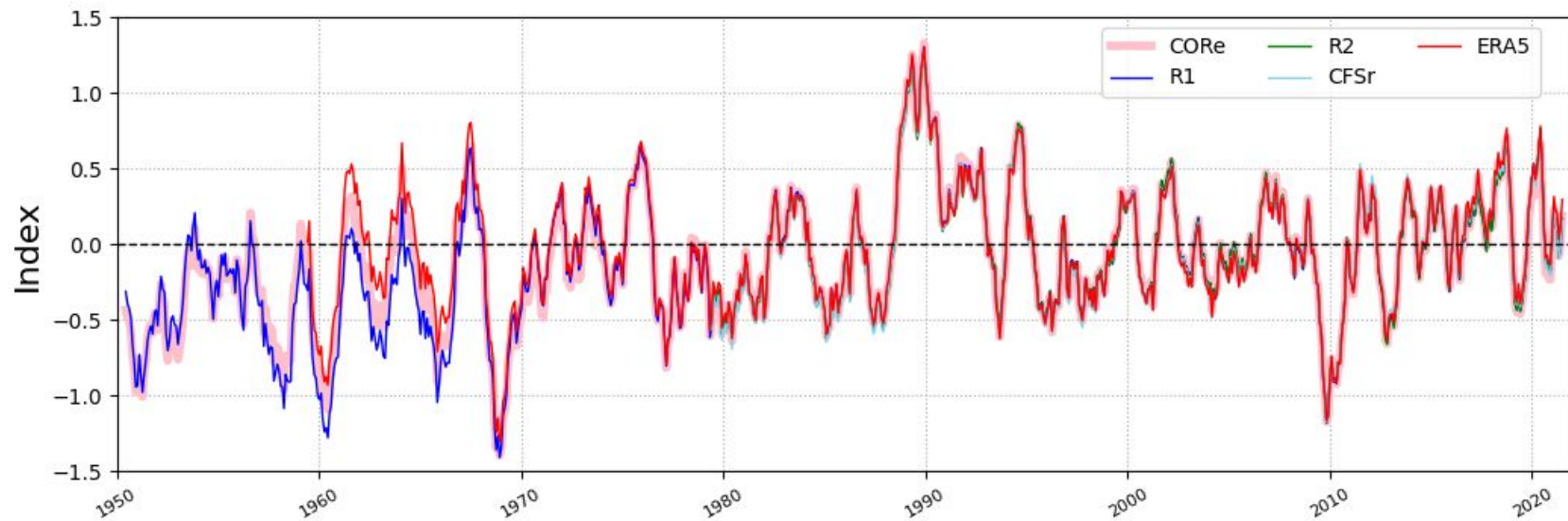# Teleconnection Patterns & Indices in CORe and the other Re-analyses

Analysis by Mingyue Chen

- AO (CPC website)
    - Index – project of 1000mb monthly anomalies to the loading pattern;
    - Loading pattern – leading EOF mode of 1000mb height monthly anomalies Jan1991-Dec2020, 20N-90N;
- AAO (CPC website)
    - Index – project of 700mb monthly anomalies to the loading pattern;
    - Loading pattern –leading EOF mode of 700mb height monthly anomalies Jan1991-Dec2020, 20S-90S;
- NAO (Stephenson et al. 2006)
    - The difference in MSLP between two boxes means:
    southern box: 90W to 60E, 20N to 55N; northern box: 90W to 60E, 55N to 90N
- PNA (pointwise method following Wallace and Gutzler (1981)
    - PNA = $Z^*(15°N-25°N,180-140°W)-Z^*(40°N-50°N,180-140°W)$
        $+Z^*(45°N-60°N,125°W-105°W)-Z^*(25°N-35°N,90°W-70°W)$
    - Z^*=500mb height monthly anomalies;
- Monthly anomalies based on 1991-2020 climatology
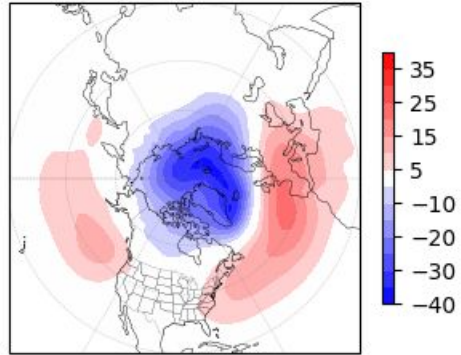- Re-analyses: CORe, R1, R2, CFSr, & ERA5
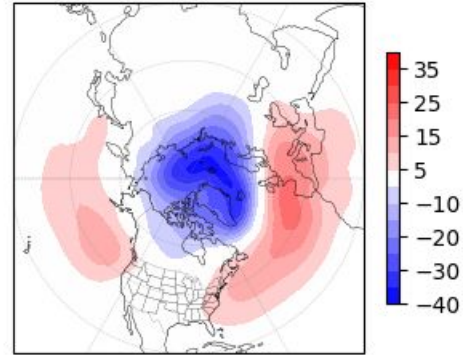
AO Standarized Monthly Index (11-month-running-mean)
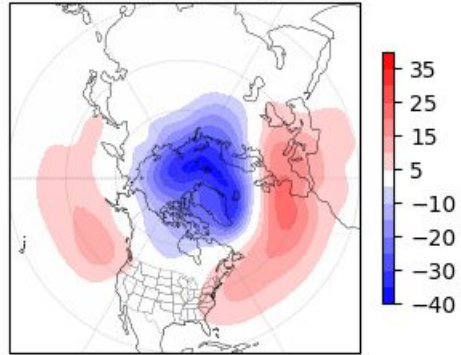
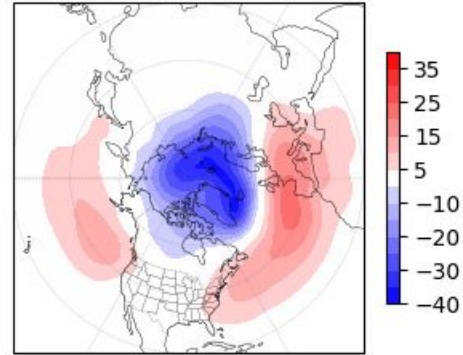# AO Loading Pattern, Leading EOF, 1991-2020
Regression map of 1000mb height(m)

CORe(19.1%)

R1(19.0%)

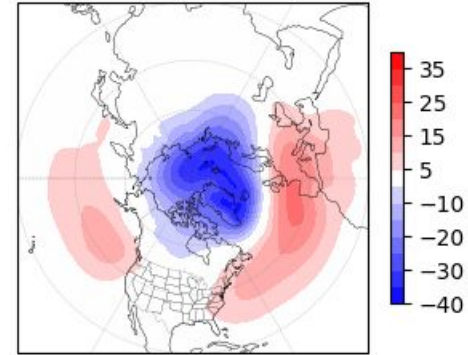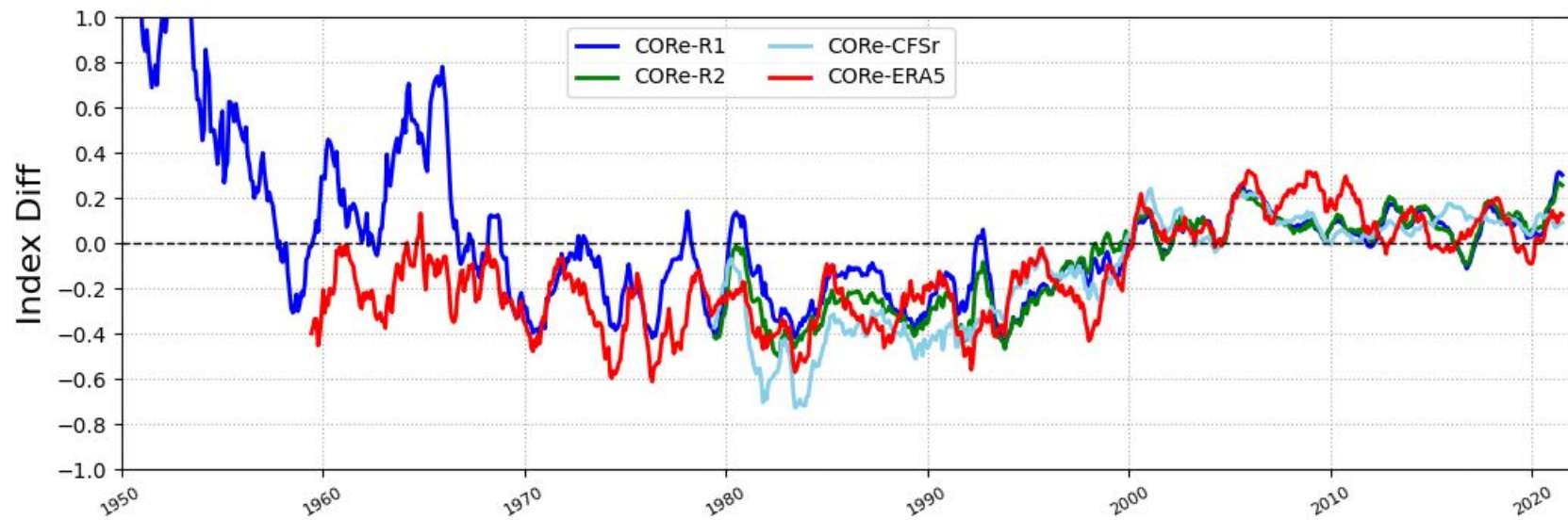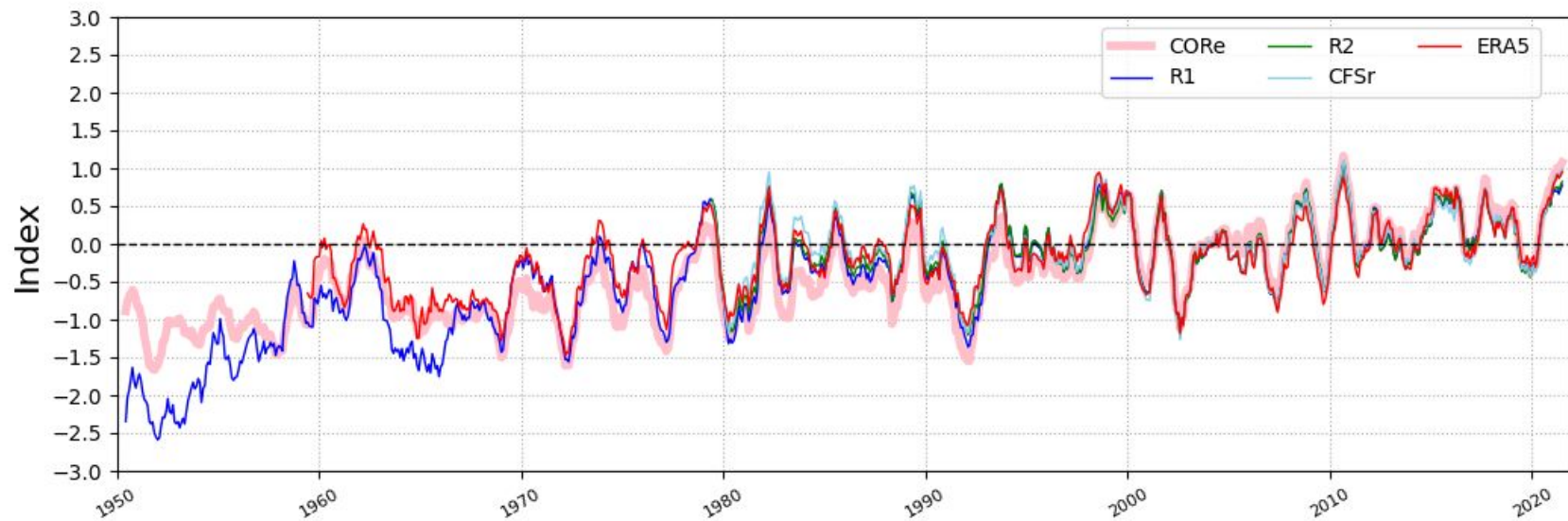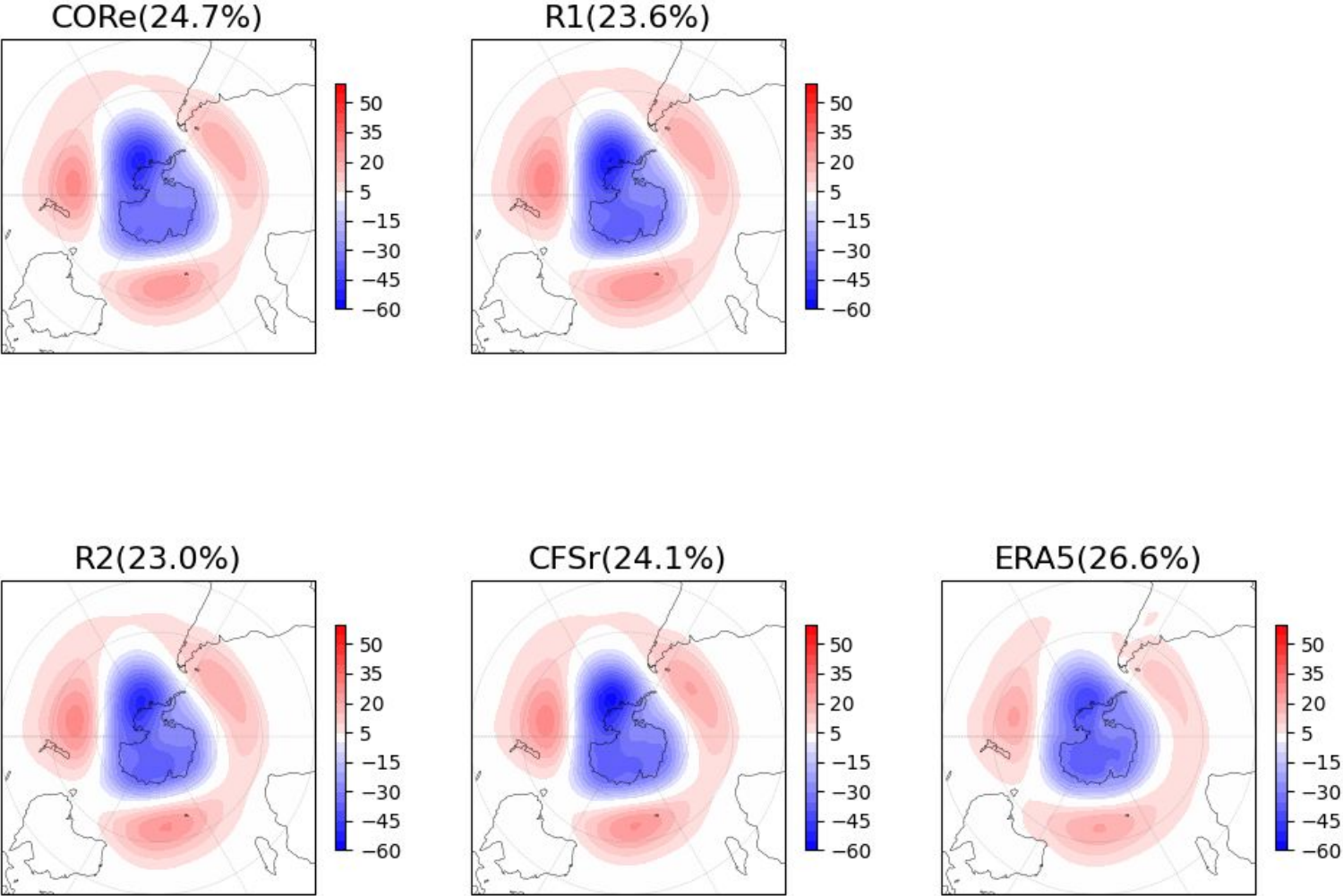R2(19.1%)

CFSr(19.1%)

ERA5(19.4%)
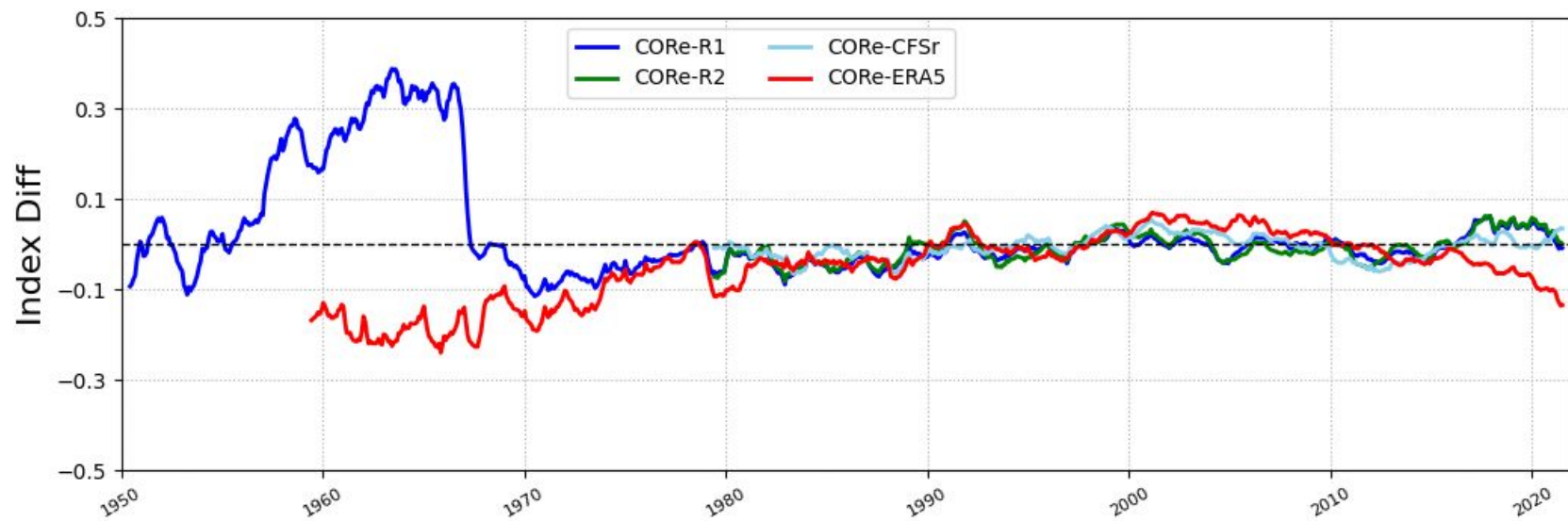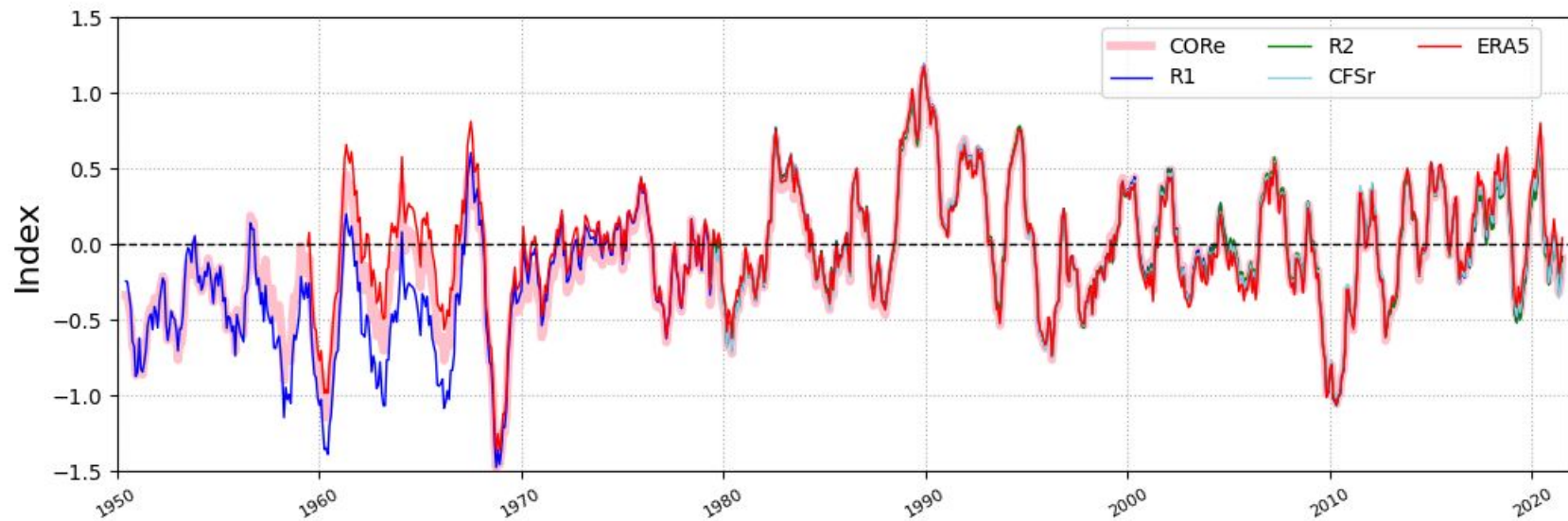
AAO Standarized Monthly Index (11-month-running-mean)

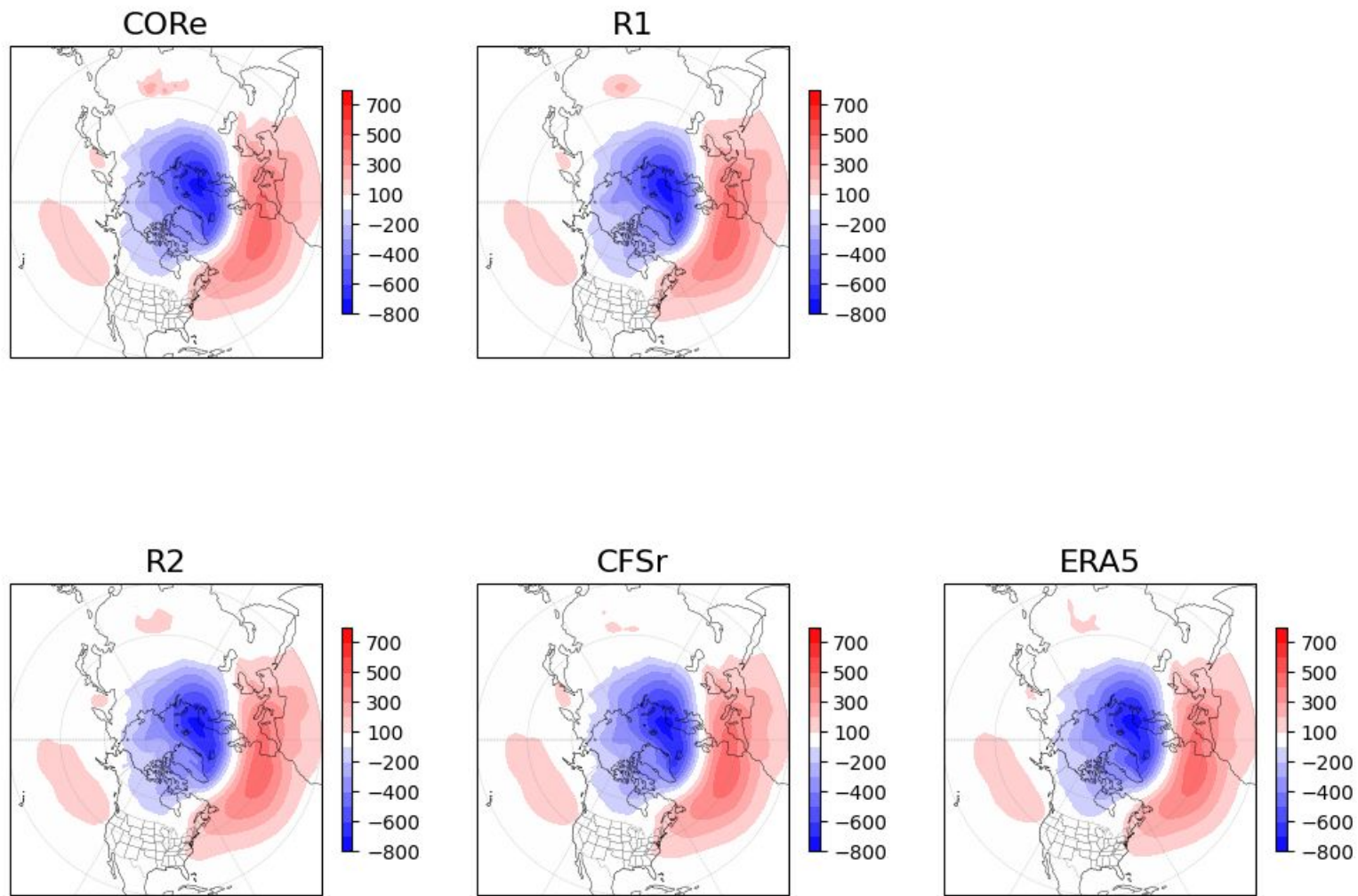# AAO Loading Pattern, Leading EOF, 1991-2020
Regression map of 700mb height(m)

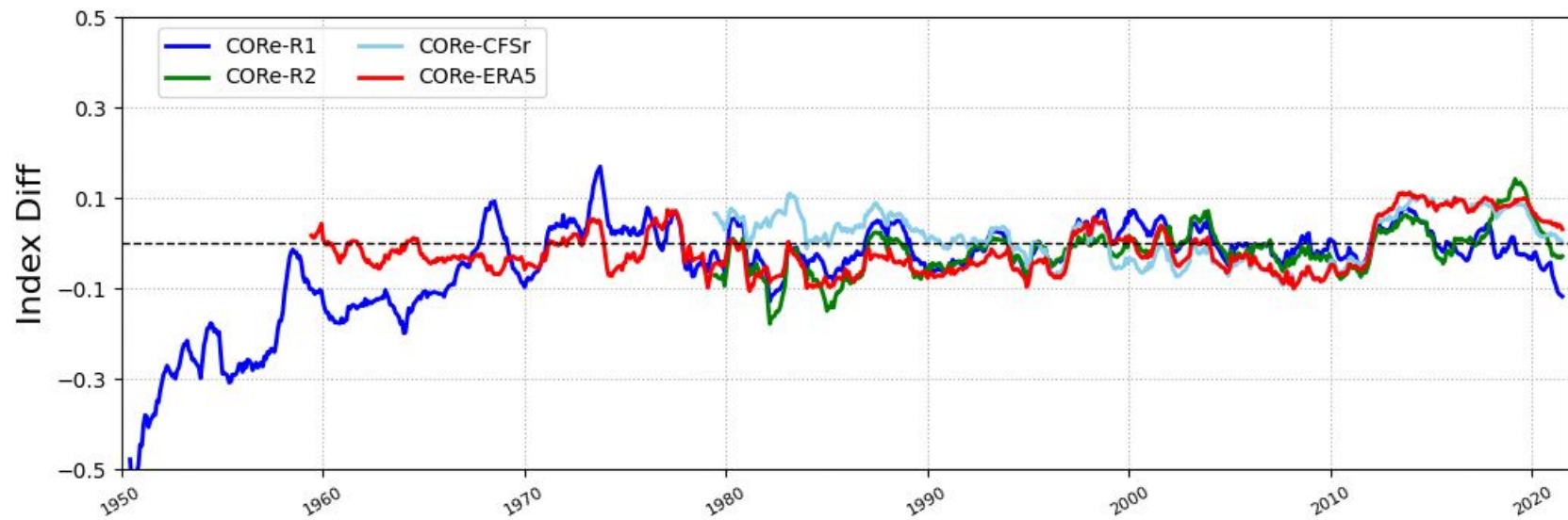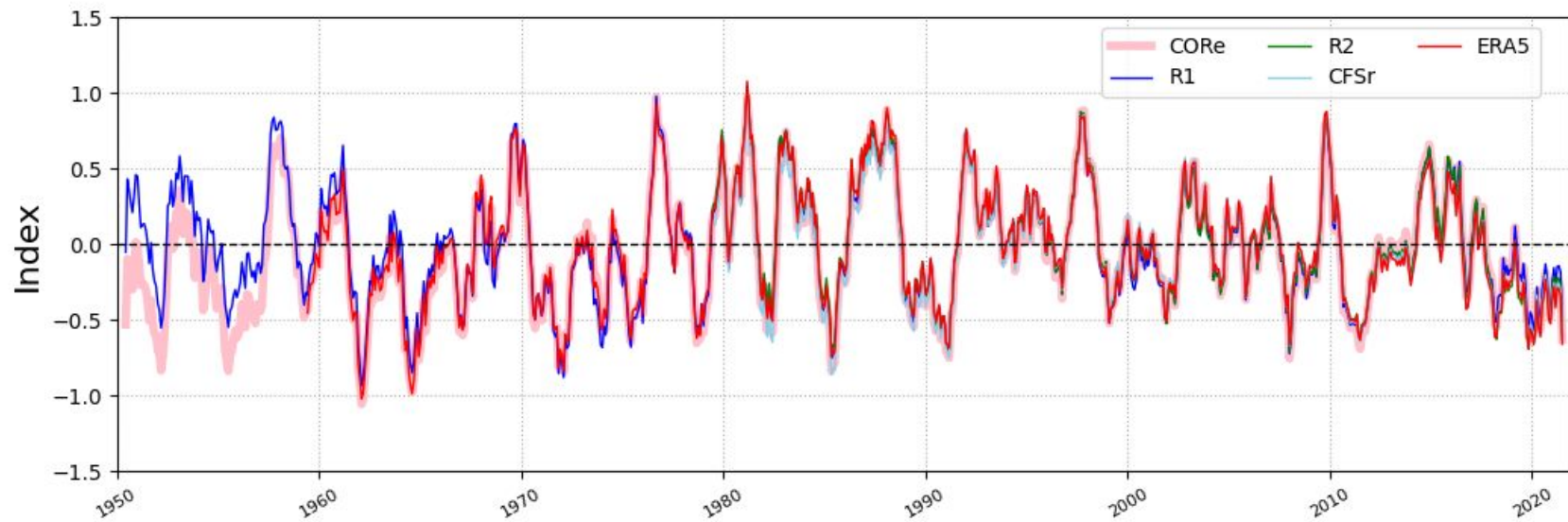CORe(24.7%)

R1(23.6%)

R2(23.0%)

CFSr(24.1%)

ERA5(26.6%)

NAO Standarized Monthly Index (11-month-running-mean)

DJF(1991-2020) Regresion map of [NAO index, MSLP] (Pa)

PNA Standarized Monthly Index (11-month-running-mean)

DJF(1991-2020) Regresion map of [PNA index, 500mb height] (m)