

Overview of 2020 Summer Climate over Korea



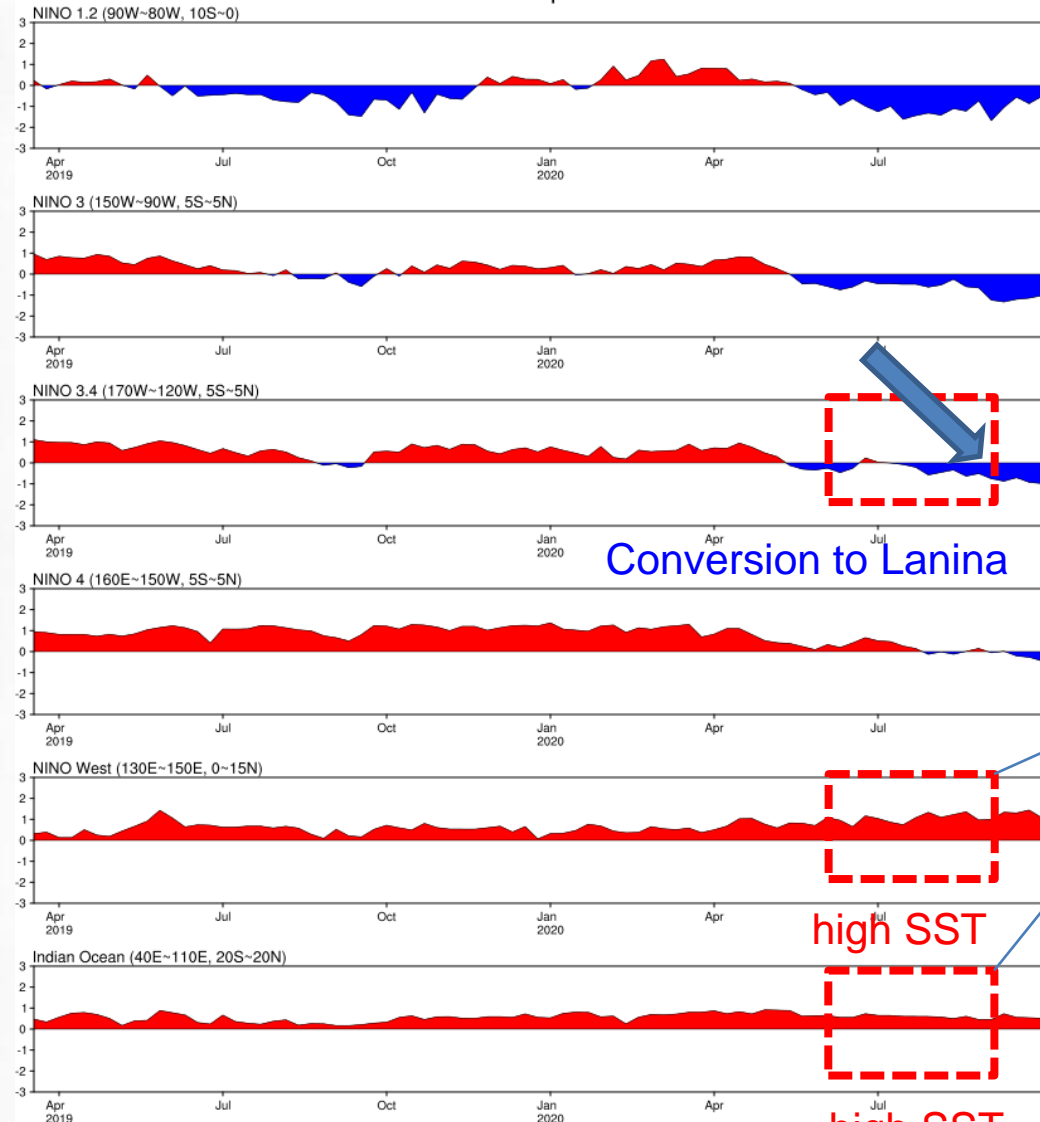
IM Gyosoon, CHOI Jeonghee, KIM Miju, KIM Jeongsik
Climate Change Monitoring Division, KMA



Impacts of Atmos. & Ocean on Korea

SST & ENSO during this summer

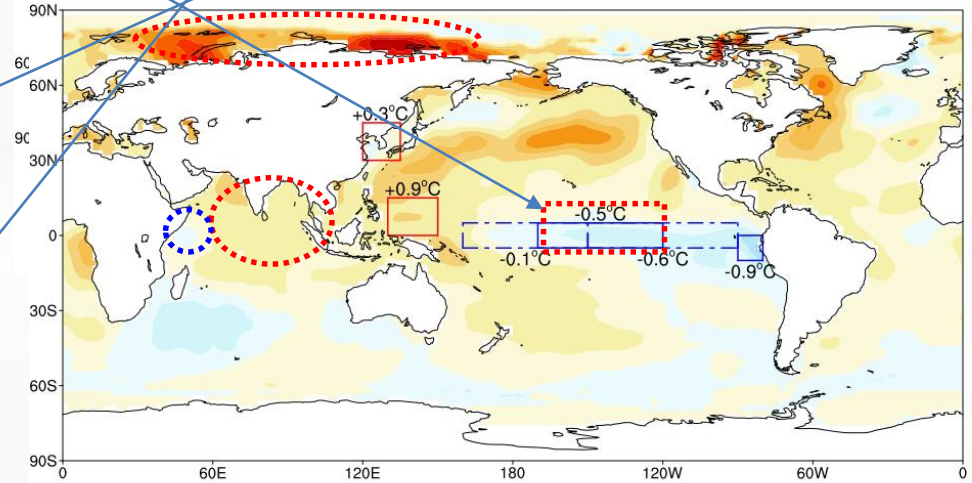
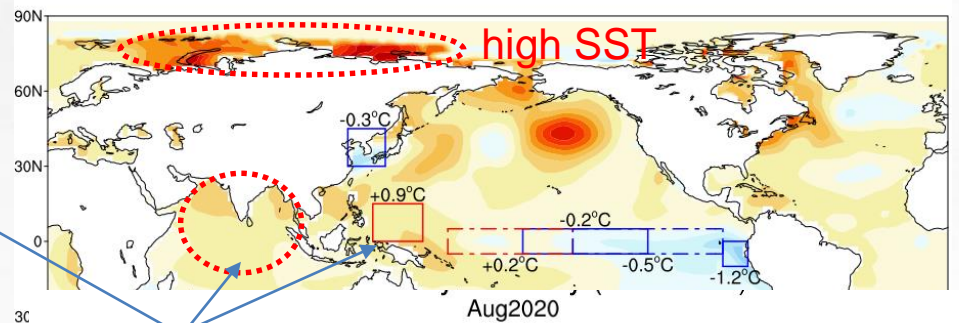
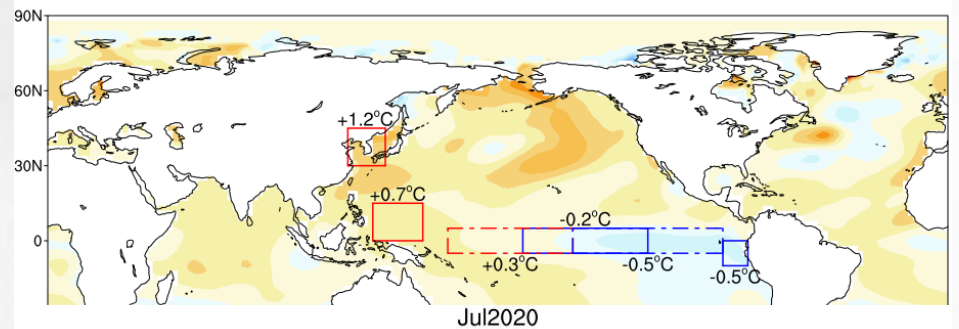
Weekly El Niño Index
Last Week : 27Sep2020 ~ 03Oct2020



LINE: SST MEAN-CLIM
DATA : OISSTv2, CLIM : OISSTv2(1981-2010)
Updated on 20201006



SST Monthly Anomaly (ERSSTv5)
Jun2020

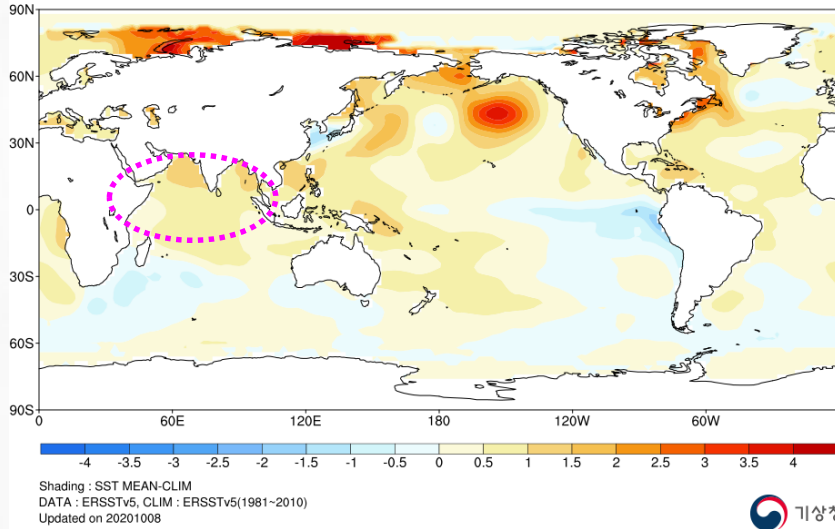


Shading : SST MEAN-CLIM
DATA : ERSSTv5, CLIM : ERSSTv5(1981-2010)
Updated on 20200908

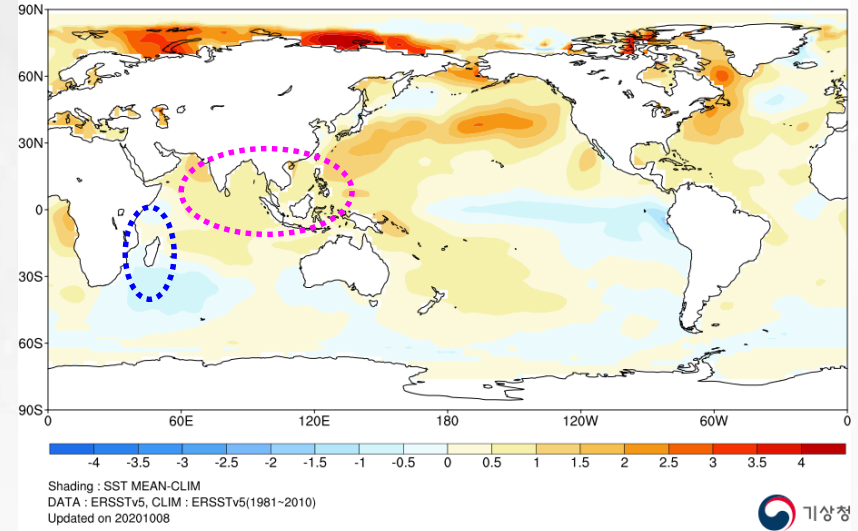


SST & OLR during this summer

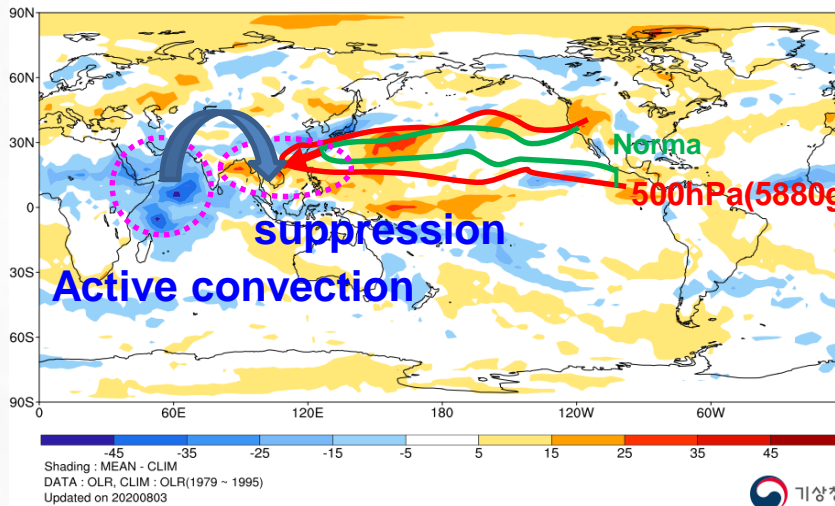
SST Monthly Anomaly (ERSSTv5)
Jul2020



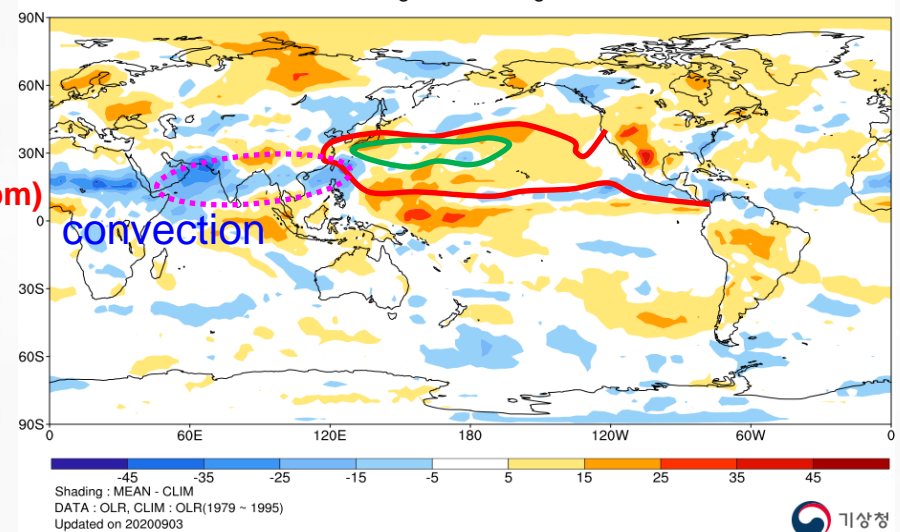
SST Monthly Anomaly (ERSSTv5)
Aug2020



Outgoing Longwave Radiation Anomaly
01Jul2020 ~ 31Jul2020

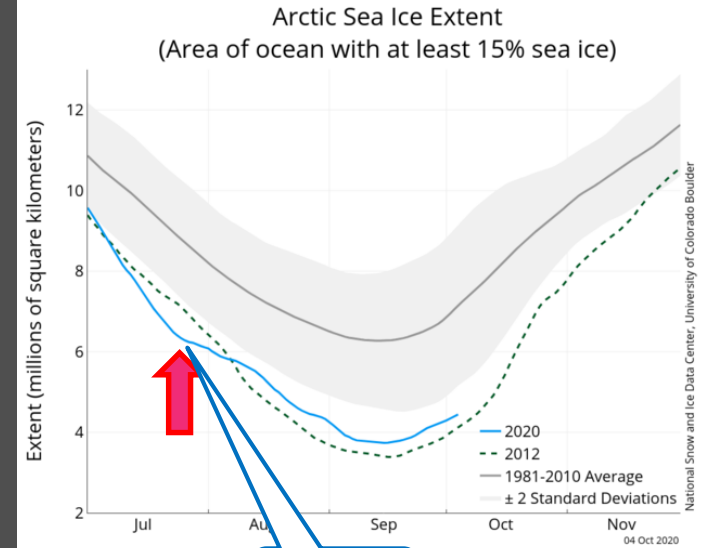
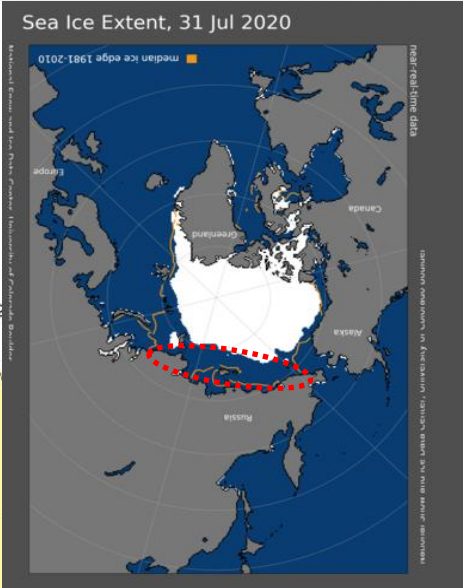
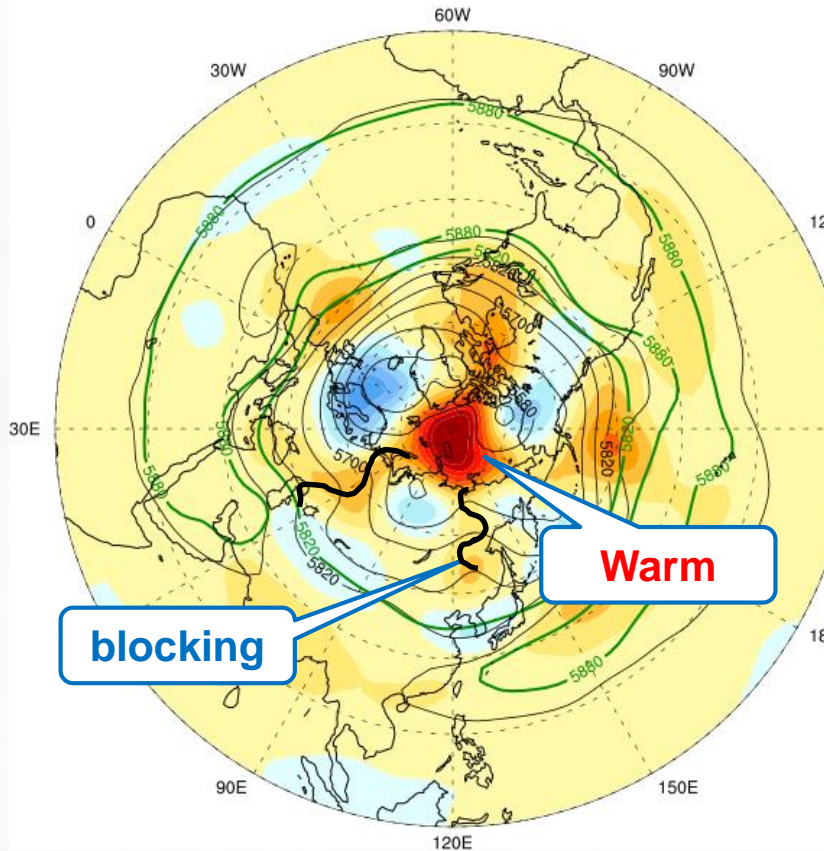


Outgoing Longwave Radiation Anomaly
01Aug2020 ~ 31Aug2020

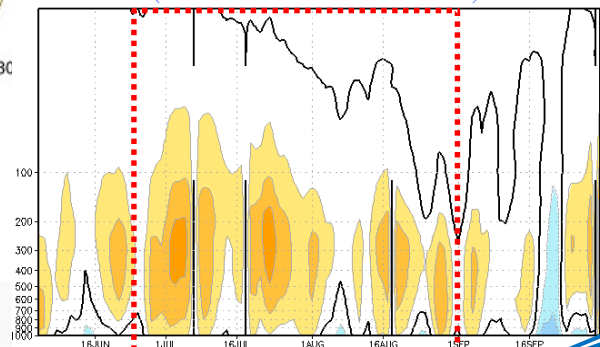


Some partial impact of arctic area

500hPa GPH Mean
01Jul2020 ~ 31Jul2020



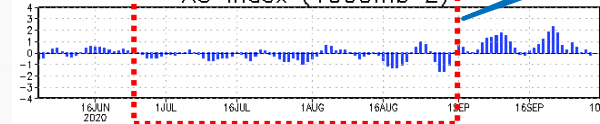
Normalized GPH anomaly (65°N-90°N)
(04Jun2020 - 01Oct2020)



lowest

(-)AO

AO index (1000mb Z)

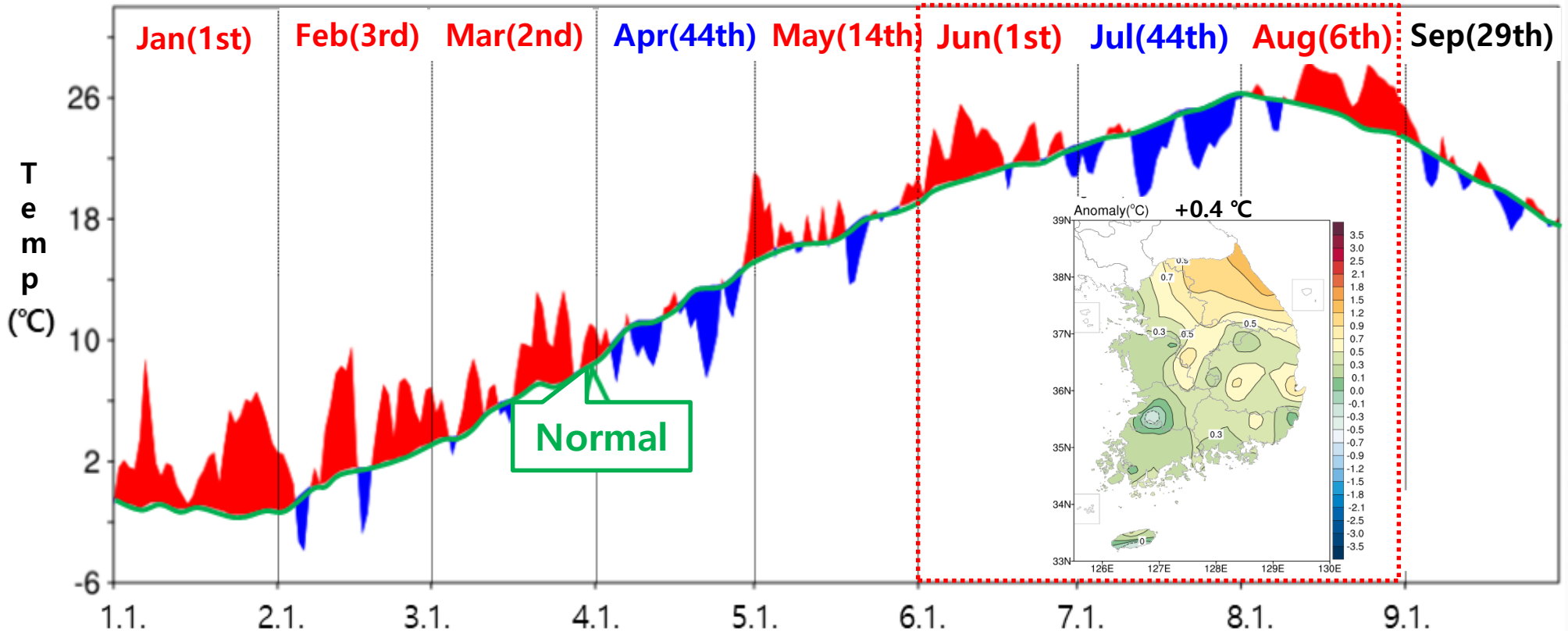




Main Feature of Mean Temp. this summer

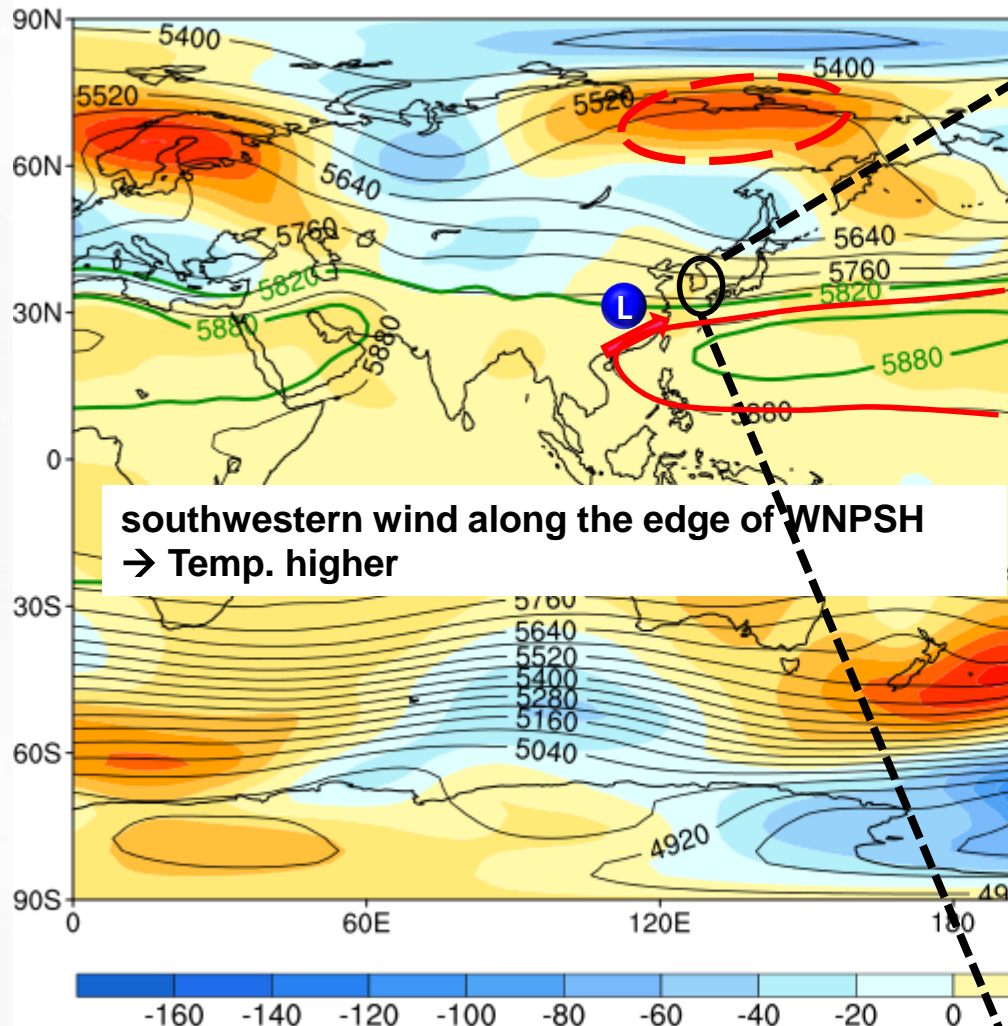
Climatological Temp. Feature in the South Korea

Korea (45stn)
Mean Temperature
(01Jan2020 ~ 04Oct2020) Summer

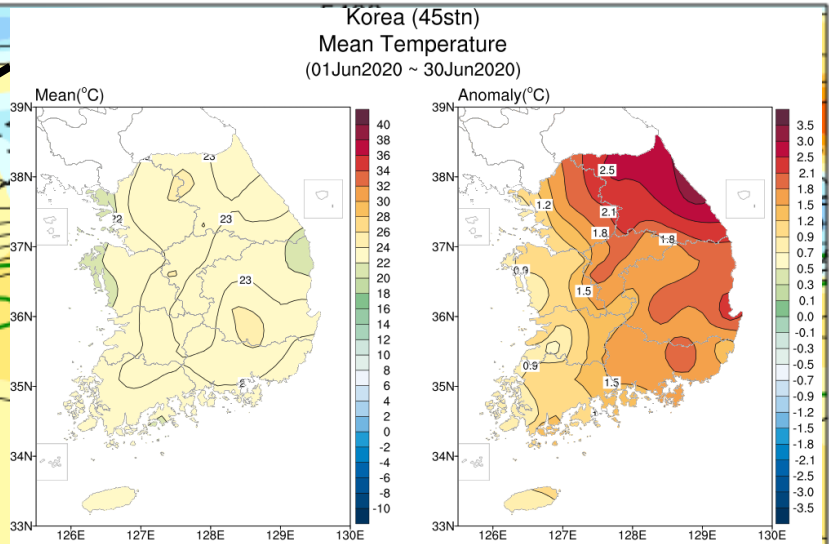


Monthly Mean Temperature in June

500hPa GPH Mean 01Jun2020 ~ 30Jun2020

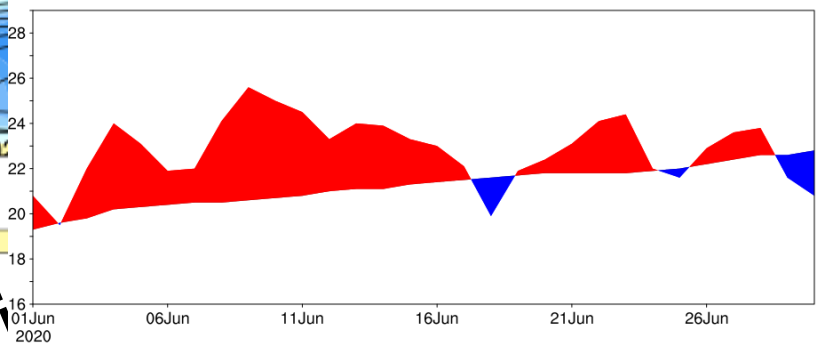


southwestern wind along the edge of WNPSH
→ Temp. higher



| | |
|-----------|--------------------------------------|
| Mean | : 21.1 (Uljin) ~ 24.5 (Daegu) |
| Anomaly | : 0.5 (Jeongeup) ~ 3.3 (Gangneung) |
| Area Mean | : 22.8 (normal : 21.2) Anomaly : 1.6 |

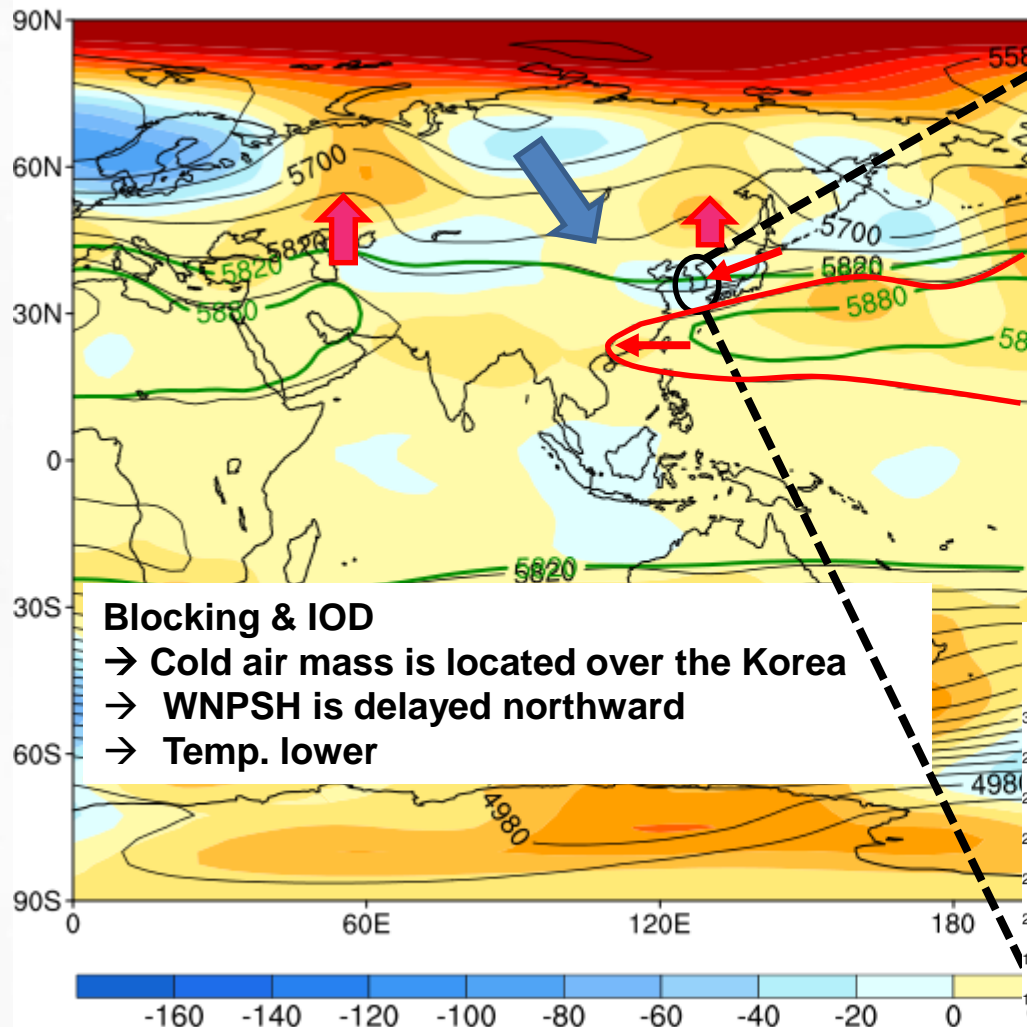
Korea (45stn) Mean Temperature (01Jun2020 ~ 30Jun2020)



Shading : GPH MEAN - CLIM, Contour : GPH MEAN, Green Line : CLIM
DATA : NCEP, CLIM : NCEP(1981 ~ 2010)
Updated on 20200703

Monthly Mean Temperature in July

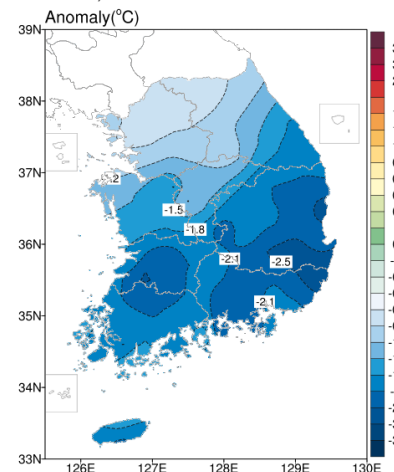
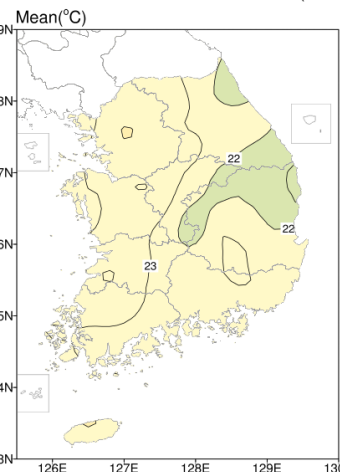
500hPa GPH Mean 01Jul2020 ~ 31Jul2020



Blocking & IOD

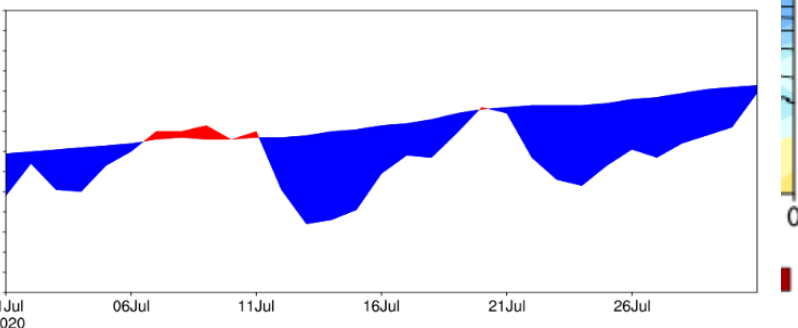
- Cold air mass is located over the Korea
- WNPSH is delayed northward
- Temp. lower

Korea (45stn)
Mean Temperature
(01Jul2020 ~ 31Jul2020)



| | |
|-----------|---------------------------------------|
| Mean | : 20.8 (Ulsin) ~ 24.3 (Cheongju) |
| Anomaly | : -2.9 (Ulsan) ~ -0.7 (Chuncheon) |
| Area Mean | : 22.7 (normal : 24.5) Anomaly : -1.8 |

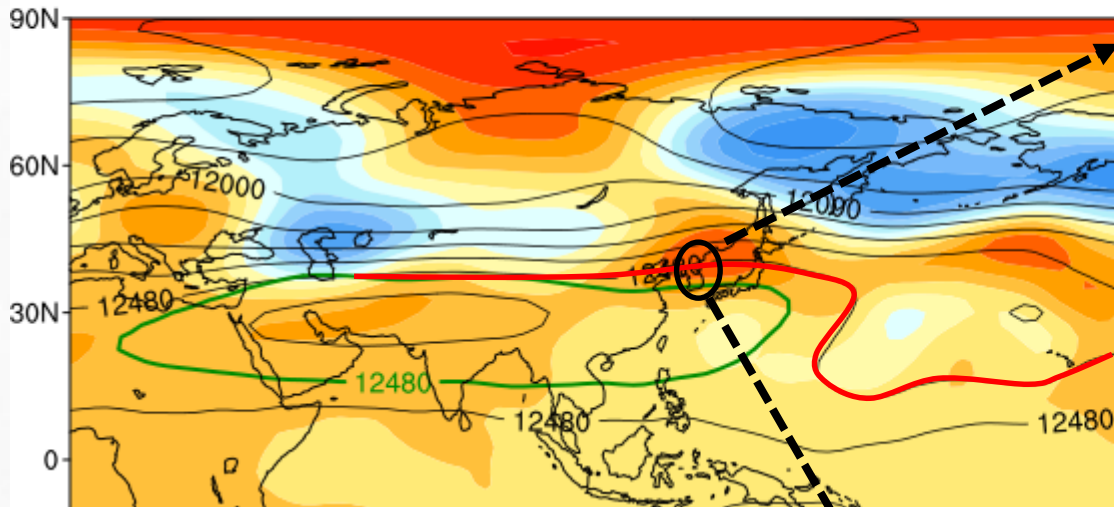
Korea (45stn)
Mean Temperature
(01Jul2020 ~ 31Jul2020)



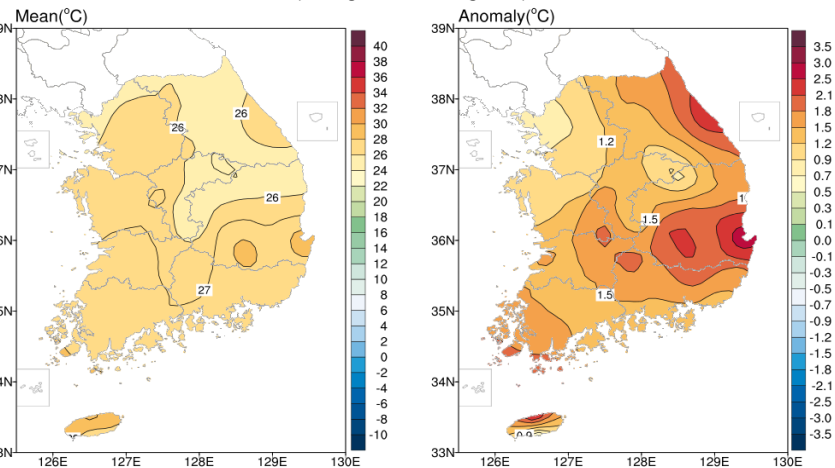
Shading : GPH MEAN - CLIM, Contour : GPH MEAN, Green Line : CLIM
DATA : NCEP, CLIM : NCEP(1981 ~ 2010)
Updated on 20200803

Monthly Mean Temperature in August

200hPa GPH Mean
01Aug2020 ~ 31Aug2020

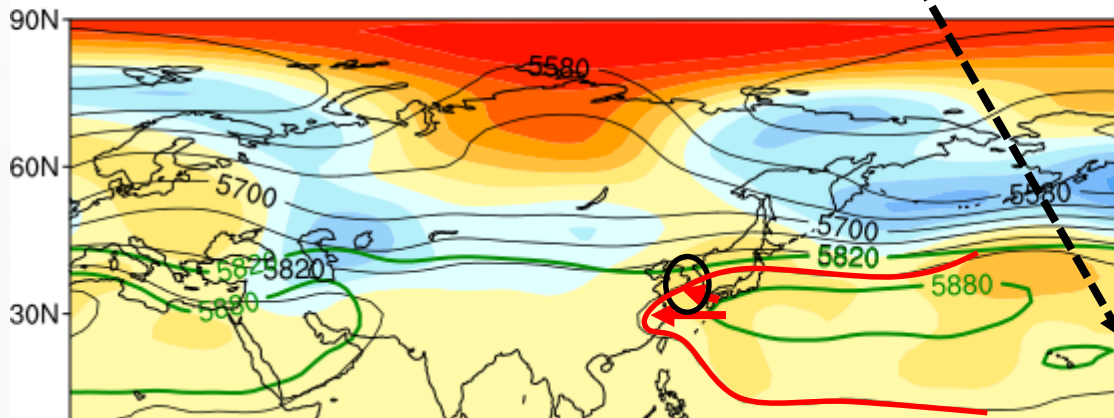


Korea (45stn)
Mean Temperature
(01Aug2020 ~ 31Aug2020)



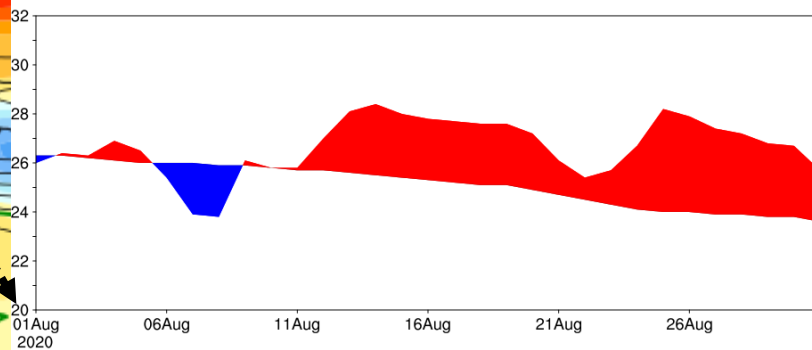
The expansion of the WNPSH & Tibetan high
→ Temp. higher

500hPa GPH Me
01Aug2020 ~ 31Aug2020



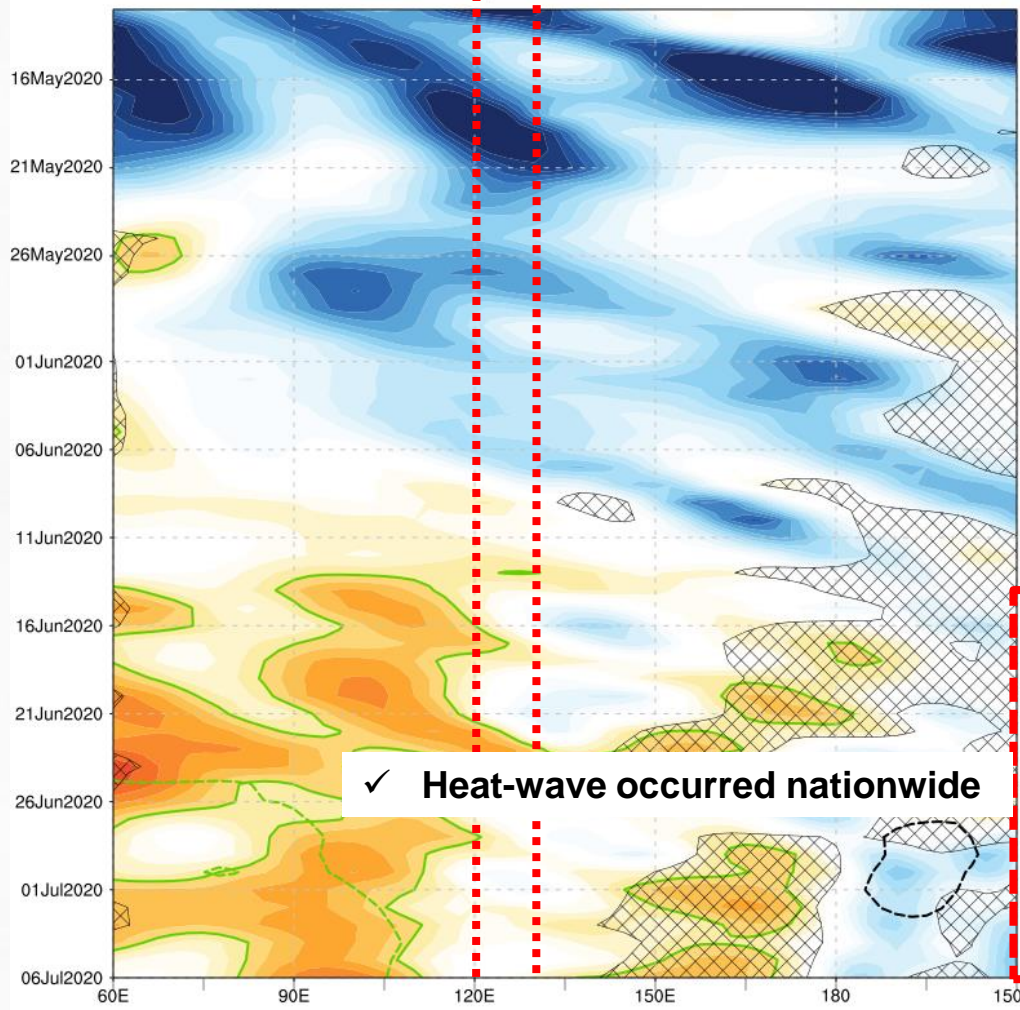
| | | | |
|-----------|------------------------|---|----------------|
| Mean | : 24.8 (Jecheon) | ~ | 28.6 (Pohang) |
| Anomaly | : 0.7 (Incheon) | ~ | 2.9 (Pohang) |
| Area Mean | : 26.6 (normal : 25.1) | | Anomaly : 1.5 |

Korea (45stn)
Mean Temperature
(01Aug2020 ~ 31Aug2020)

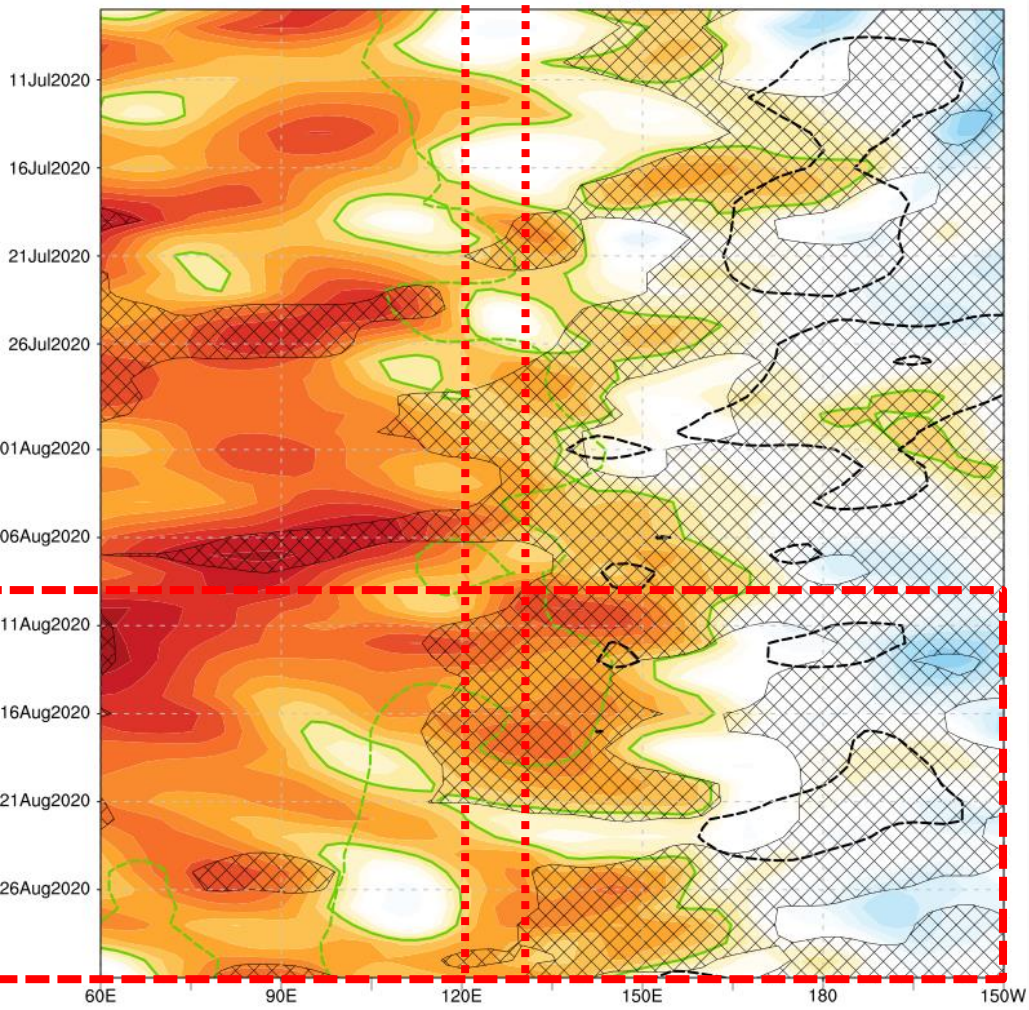


Status of Tibetan Highs & WNPH this summer

Tibetan High & North Pacific High (25N~40N)
12May2020 ~ 06Jul2020



Tibetan High & North Pacific High (25N~40N)
07Jul2020 ~ 31Aug2020



12160 12200 12240 12280 12320 12360 12400 12440 12480 12520 12560 12600 12640

Shading : Tibetan High MEAN(200hPa), Green Line : MEAN 12480gpm, Green Dotted Line : CLIM 12480gpm
Black Line : North Pacific High(500hPa) MEAN 5880gpm, Black Dotted Line : CLIM 5880gpm
DATA : NCEP, CLIM : NCEP(1981 ~ 2010)
Updated on 20200709



12160 12200 12240 12280 12320 12360 12400 12440 12480 12520 12560 12600 12640

Shading : Tibetan High MEAN(200hPa), Green Line : MEAN 12480gpm, Green Dotted Line : CLIM 12480gpm
Black Line : North Pacific High(500hPa) MEAN 5880gpm, Black Dotted Line : CLIM 5880gpm
DATA : NCEP, CLIM : NCEP(1981 ~ 2010)
Updated on 20200903

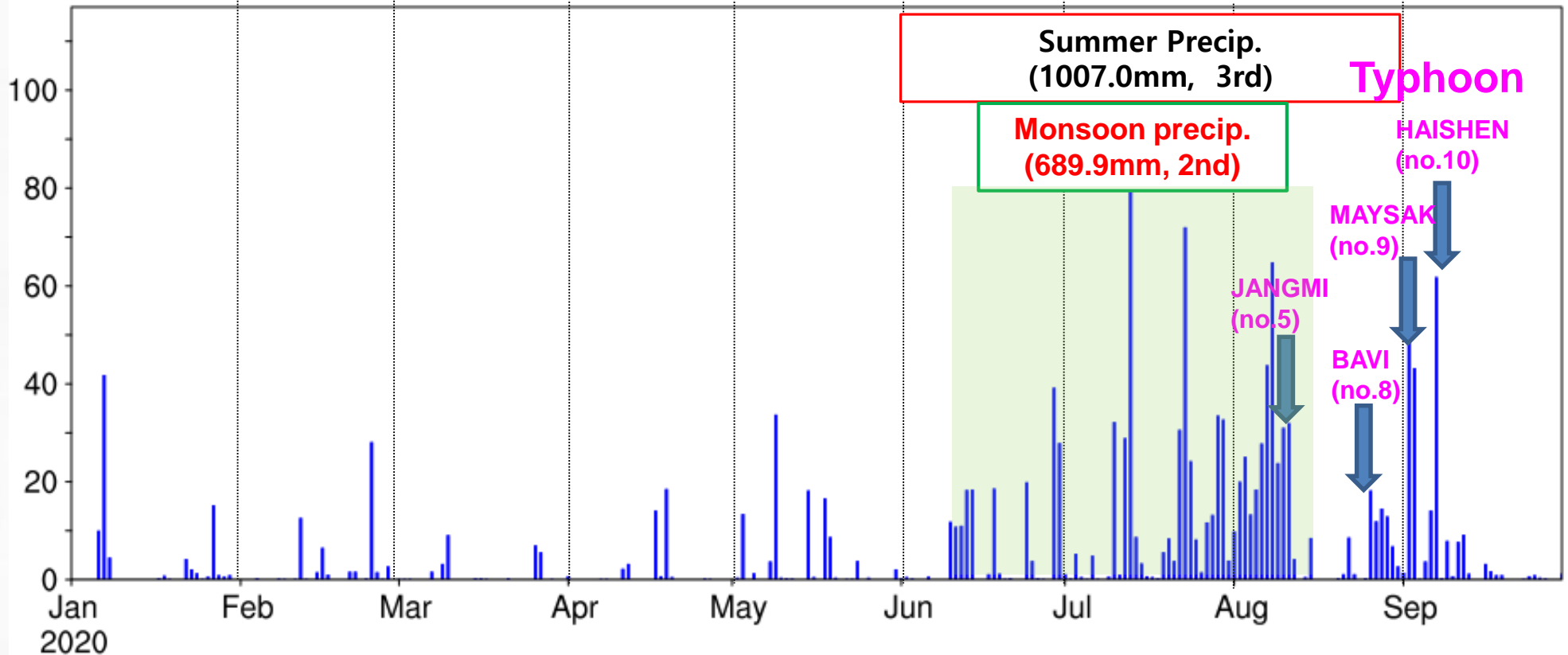




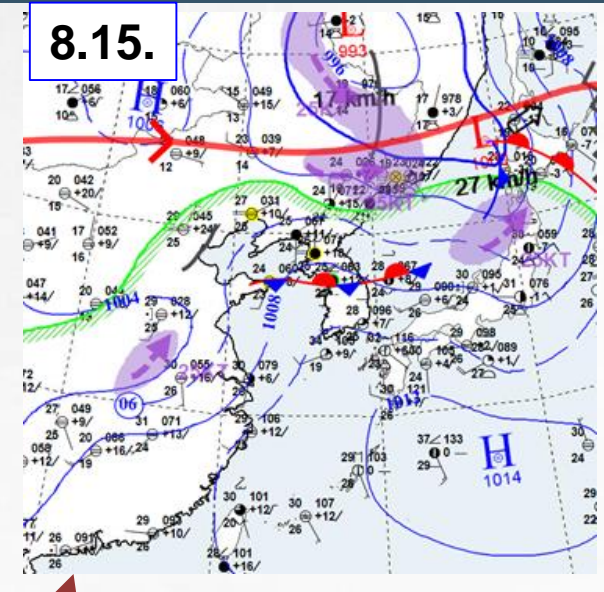
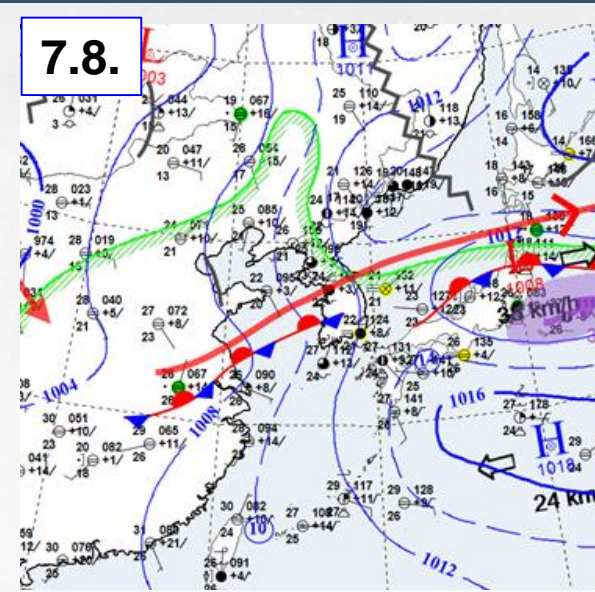
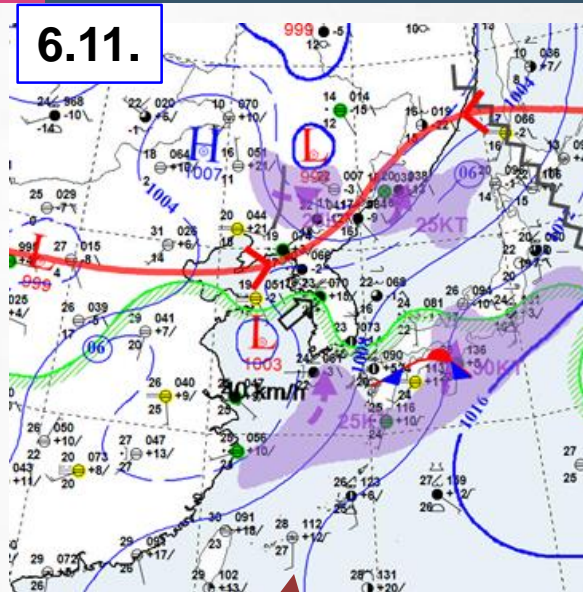
Main Feature of Precip. this summer

Climatological Precip. Feature in the Korea Peninsula

Korea (45stn)
Precipitation
(01Jan2020 ~ 30Sep2020)



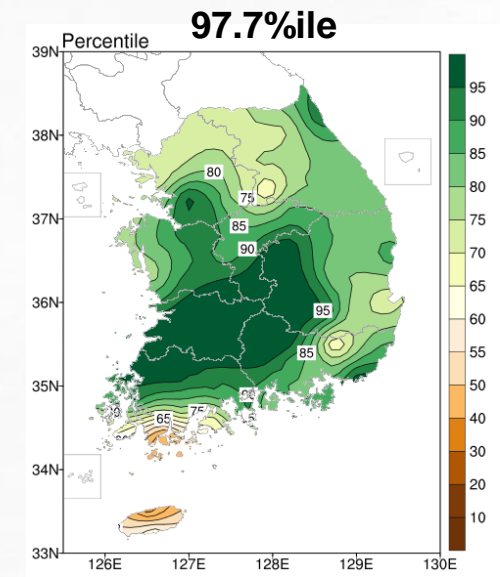
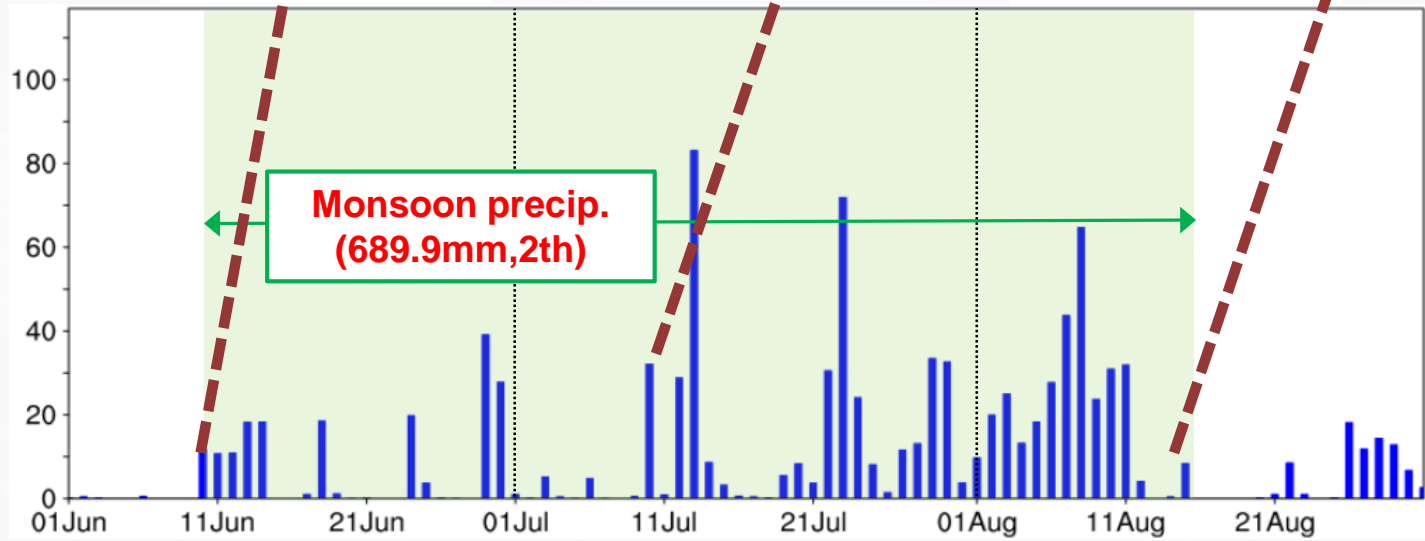
Summer monsoon season



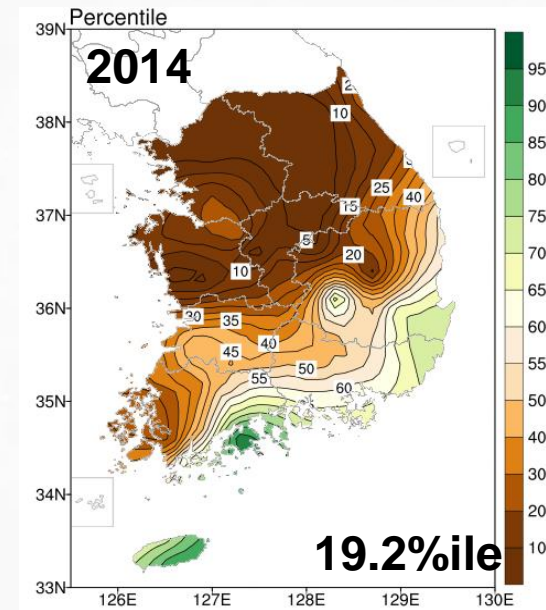
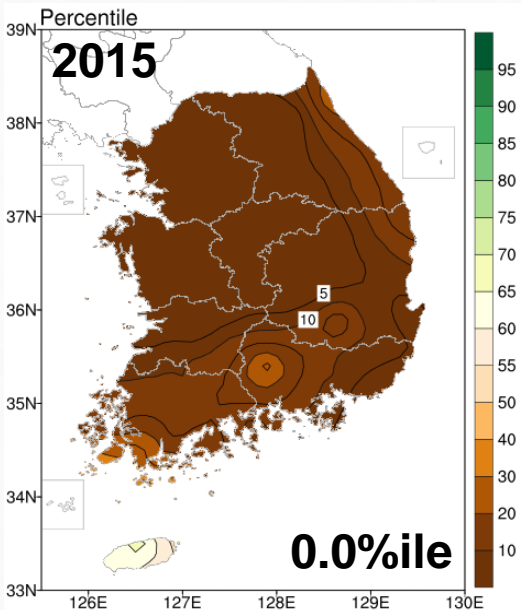
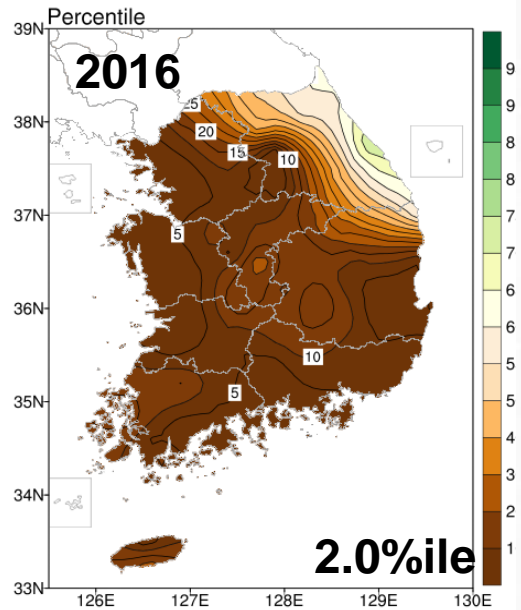
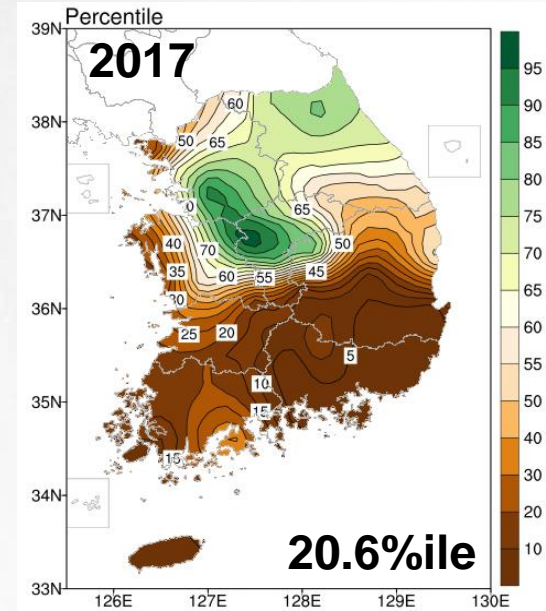
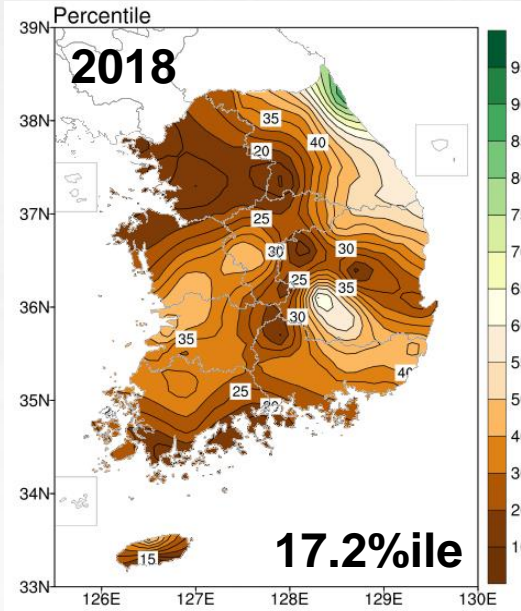
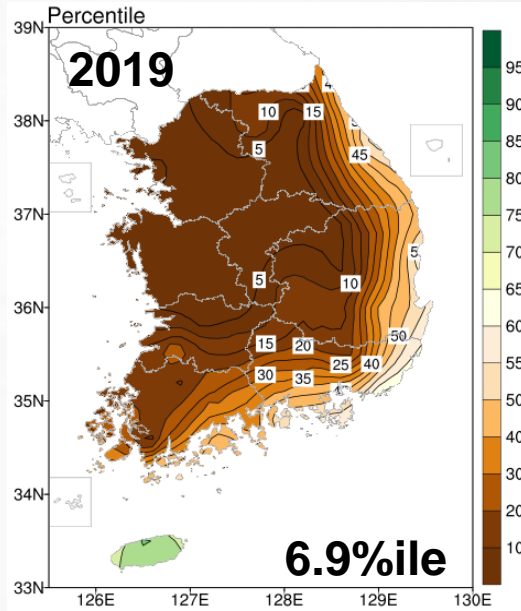
Jun(187.6mm,15th)

Jul(420.7mm,6th)

Aug(401.6mm,6th)



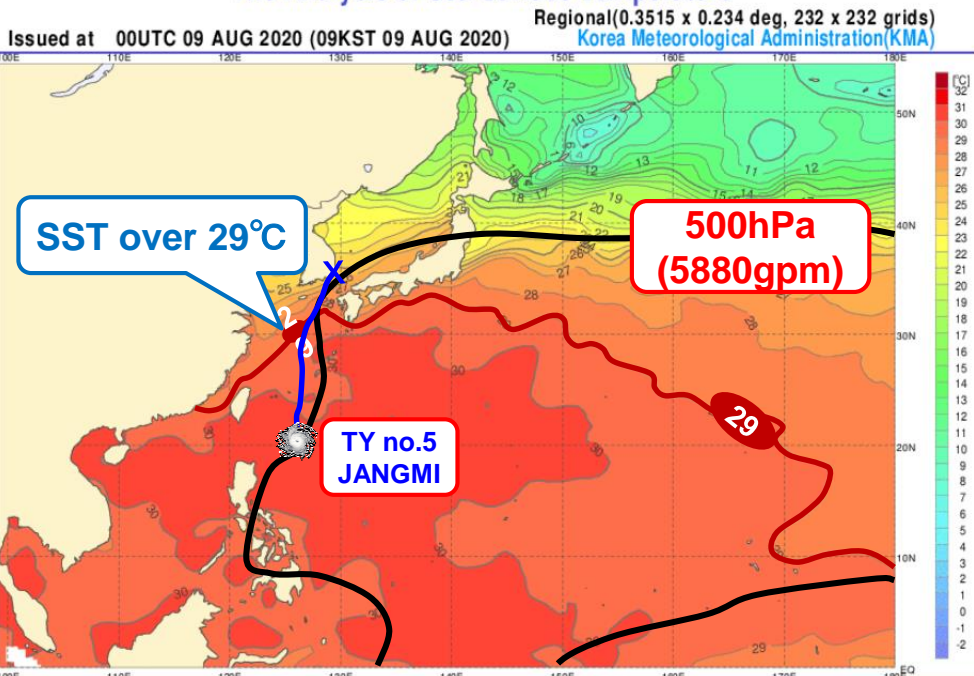
Summer Precip. for the last 6 years



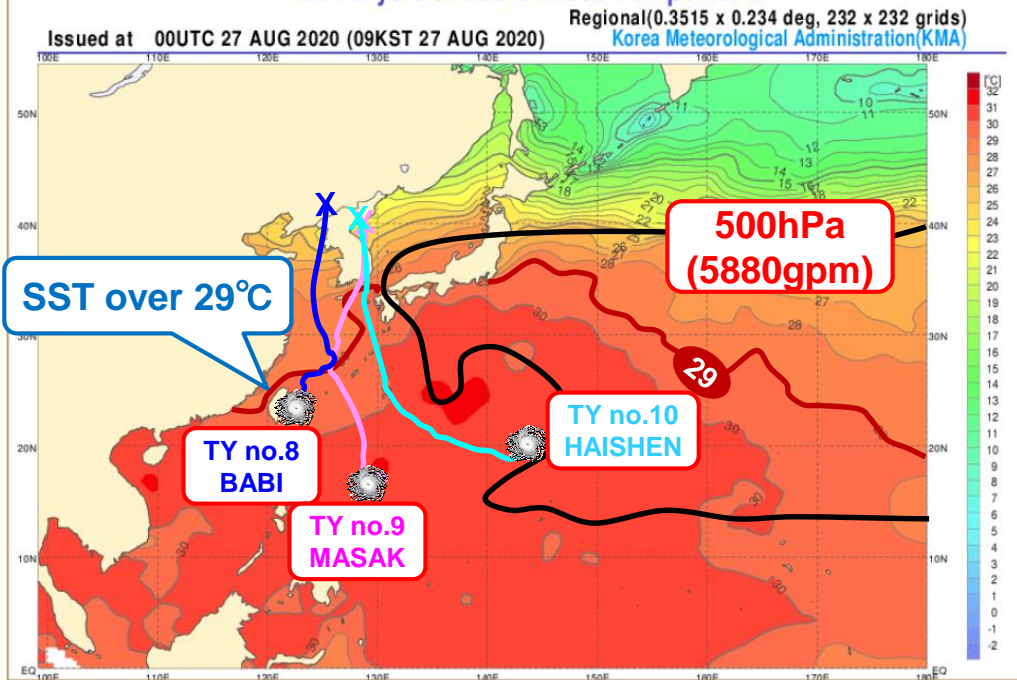
Impact Typhoons Increase Unprecedentedly

- High SST, **over 29°C**, remains in the south.
- **Not Declining WNPSH** paved the way on which Typhoon affected Korea.

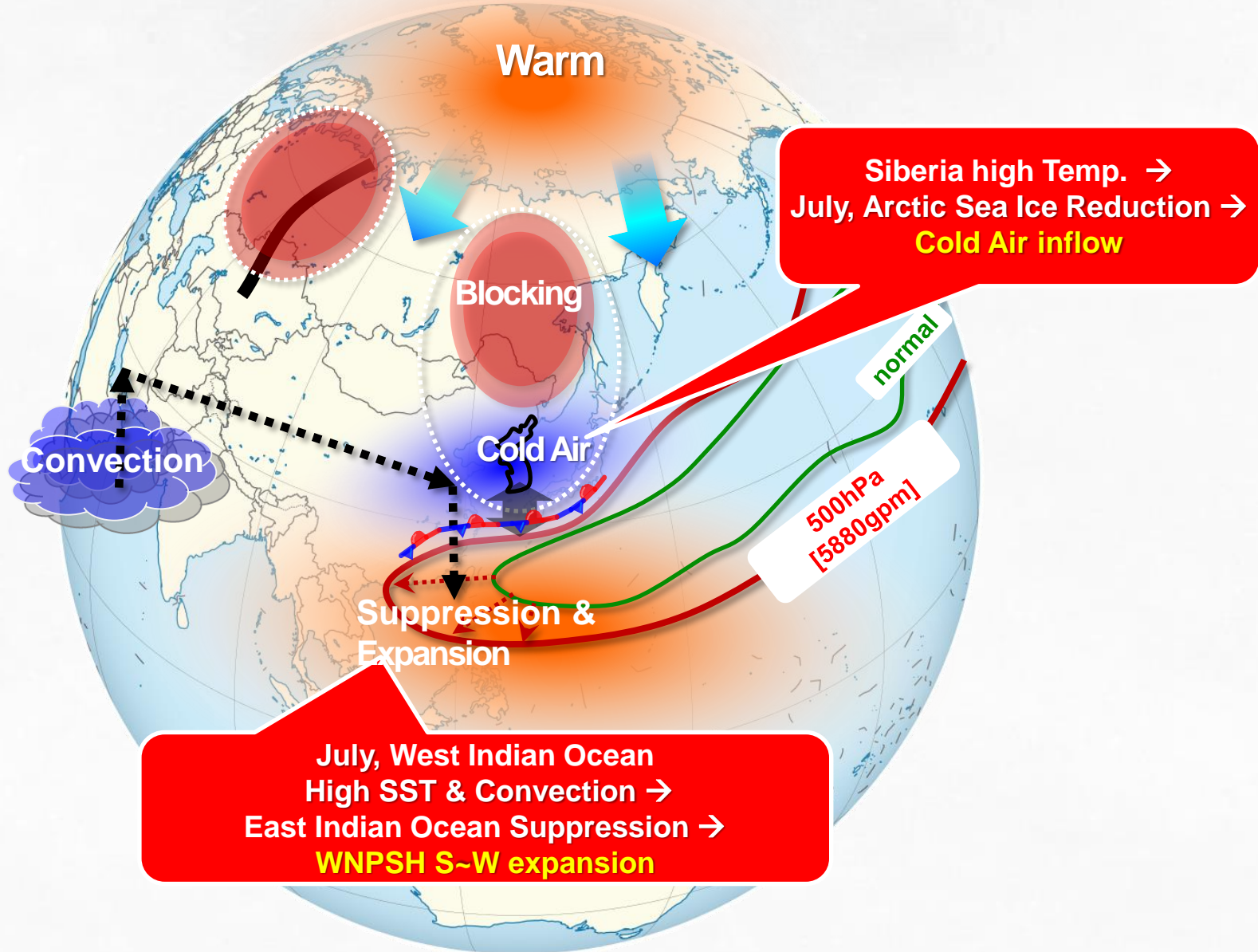
The Analysis of Sea Surface Temperature



The Analysis of Sea Surface Temperature



Schematic atmospheric circulation



THANK YOU