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Canada

New verification figures and alternative projections for the real-time forecast verification over the Arctic

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Background

- For the virtual PARCOF 2, we have started to verify seasonal forecast performances of the past seasons.
- We have agreed upon using CFSR real-time reanalysis to be our representation of “truth”.
- We have verified seasonal forecast over the Arctic using Environment Canada’s calculated 3-category approach, below, near or above normal.
- This is very similar to the real-time 3-category probabilistic approach.
- For the PARCOF-2, we have forecasted NDJ2018/19 season and we have evaluated JJA2018 season.

Background, JJA verification

Temperature, real-time forecast JJA2018

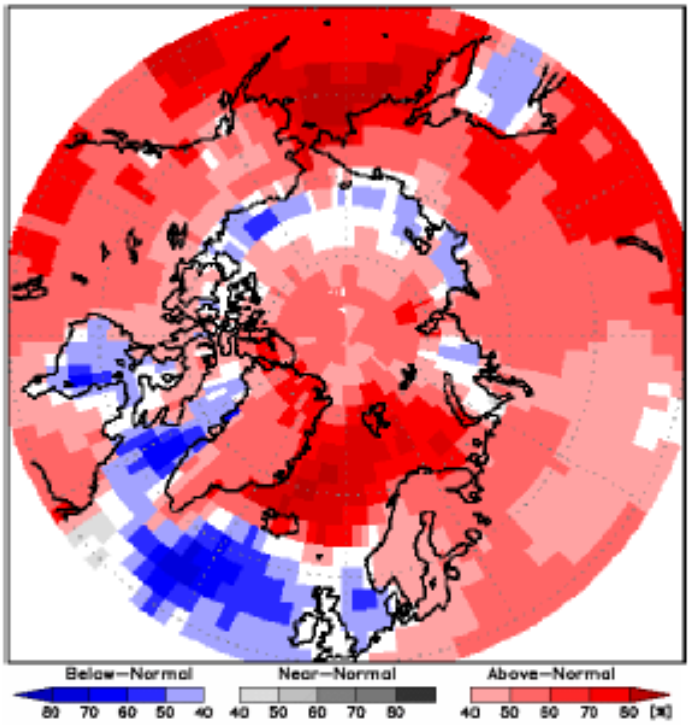


Figure 2: Surface Air Temperature Outlook for June, July and August 2018. Multi-model ensemble (MME) probability forecast of three categories (below normal, near normal, above normal) (www.wmolc.org)

Temperature, CFSR reanalysis JJA2018

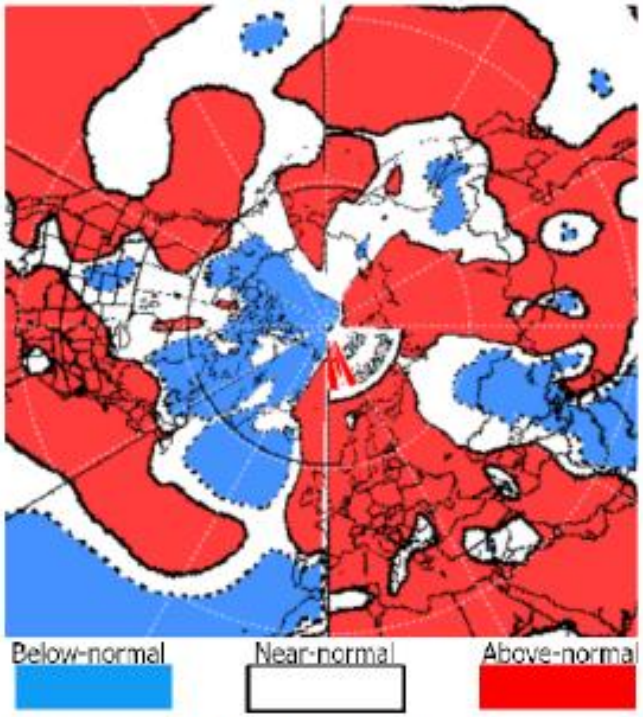
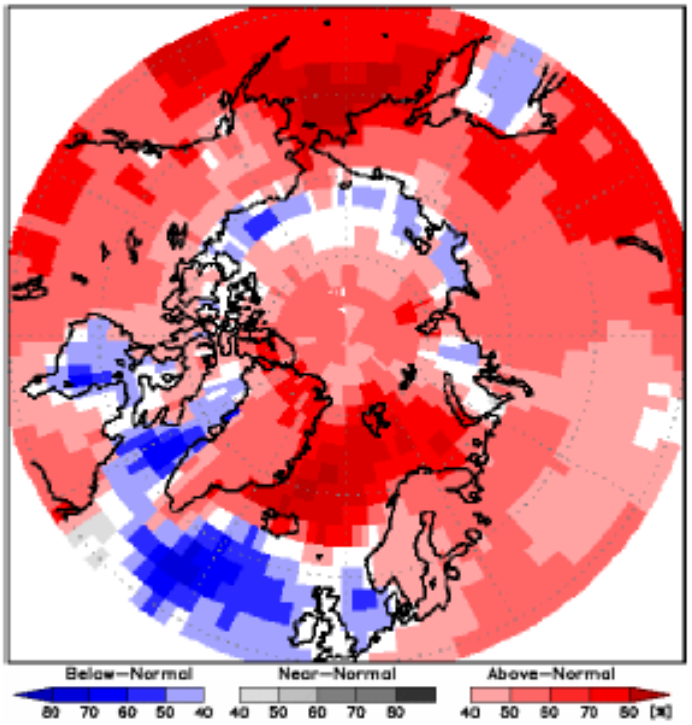


Figure 3: NCAR (National Center for Atmospheric Research) Climate Forecast System Reanalysis (CFSR) for Air Temperature, June, July and August 2018

Background, JJA verification

Temperature, real-time forecast JJA2018



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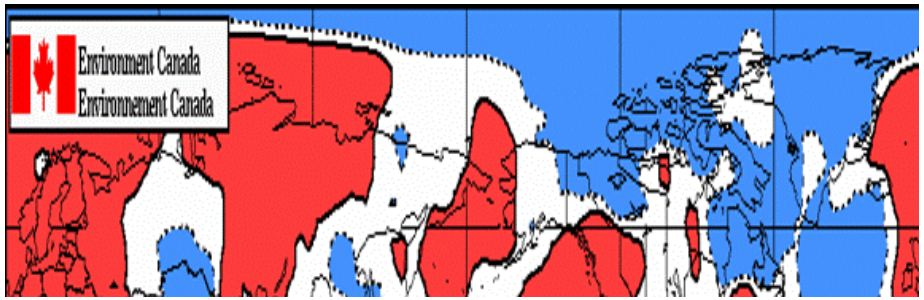
Temperature, CFSR reanalysis JJA2018



Another option: using regular lat-lon projection

Background, JJA verification

Precipitation, real-time forecast JJA2018

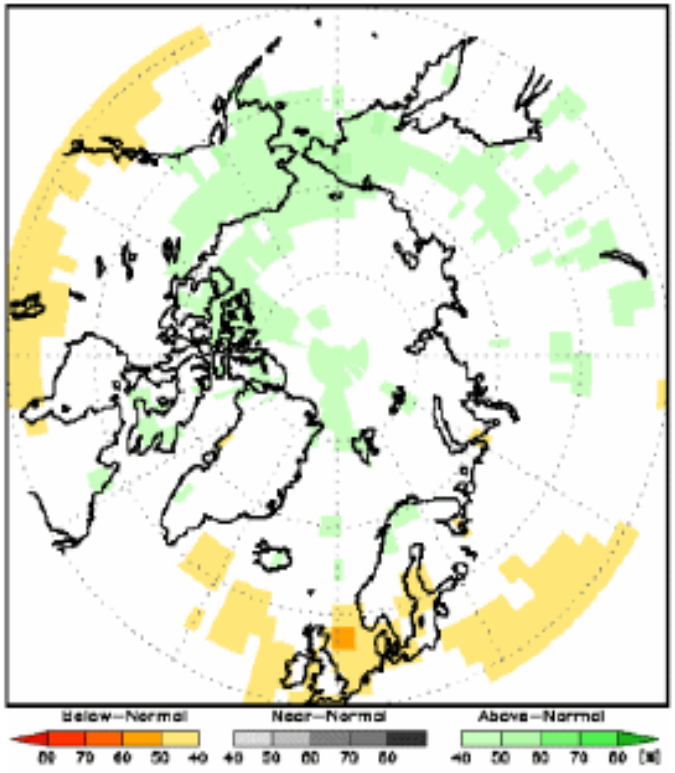


Figure 6: MME probability forecast for precipitation for JJA 2018

Precipitation, CFSR reanalysis JJA2018

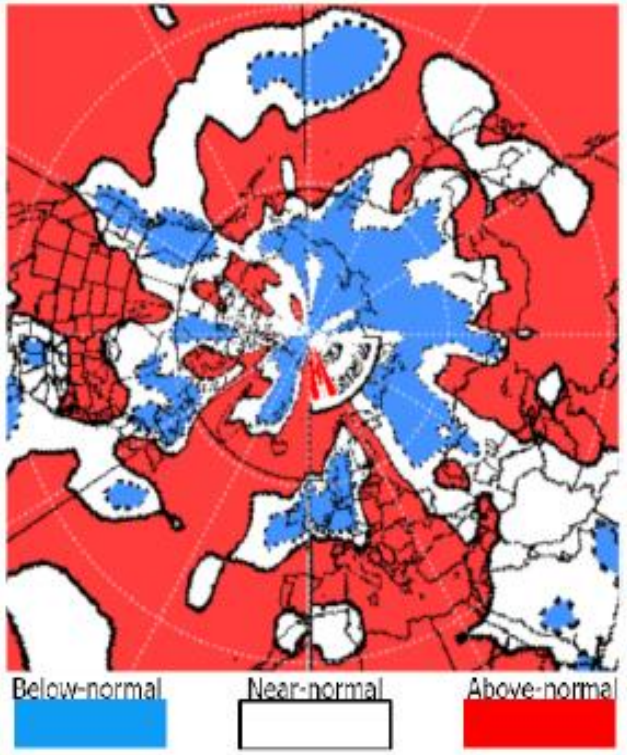
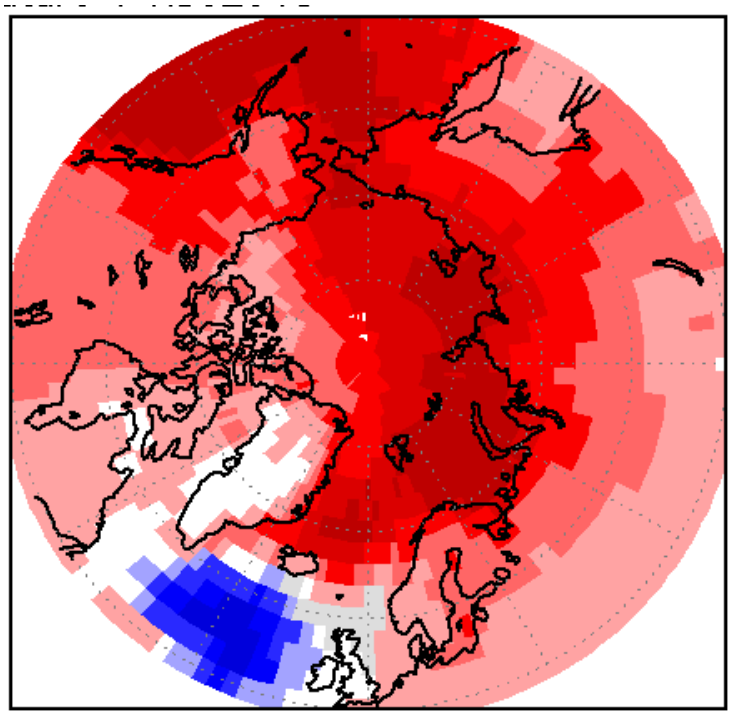


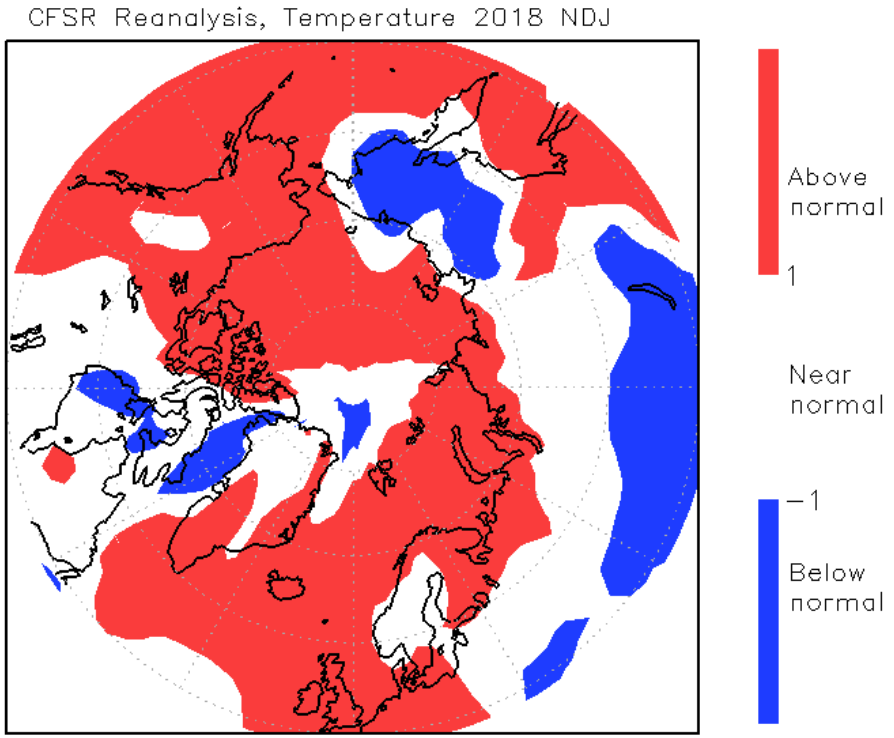
Figure 7: NCAR Climate Forecast System Reanalysis (CFSR) for Precipitation, JJA 2018

New product, using the CFSR reanalysis

Temperature, real-time forecast NDJ2018/19



Temperature, CFSR reanalysis NDJ2018/2019, **NEW PRODUCT**



Below—Normal
80 70 60 50 40

Near—Normal
40 50 60 70 80

40 50 60 70 80 [%]

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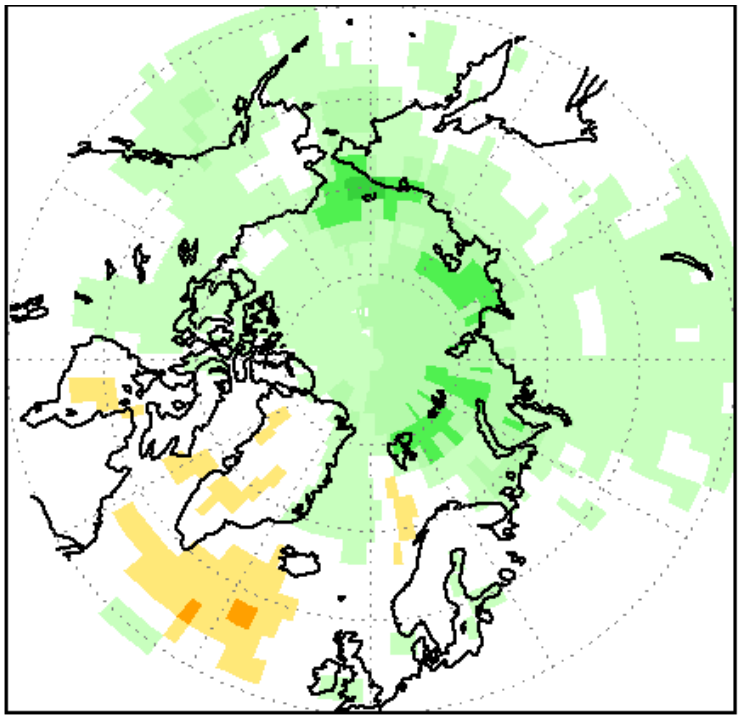
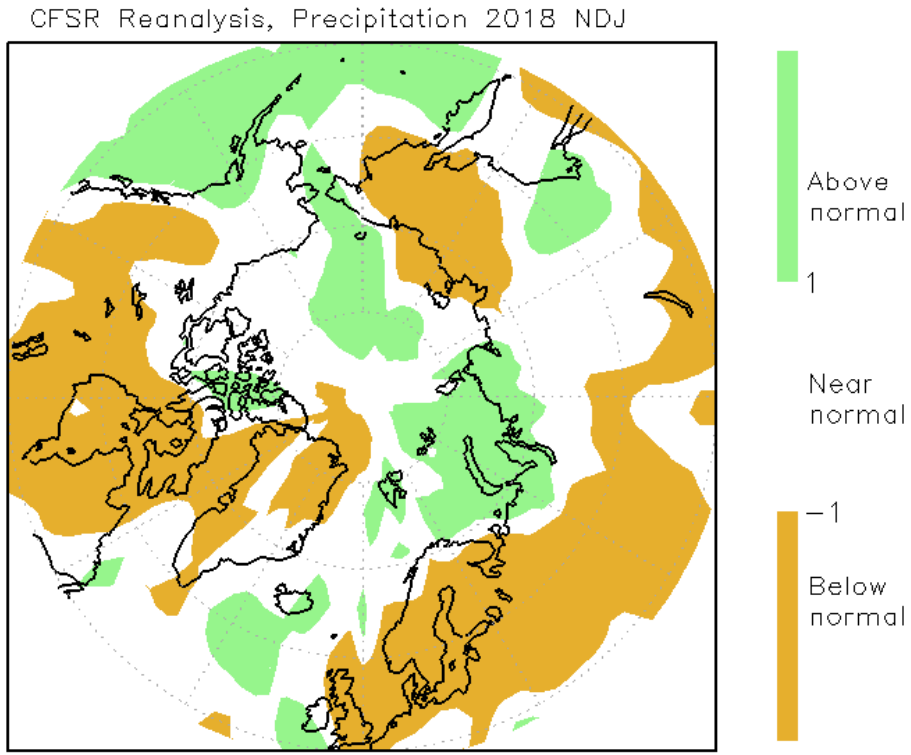
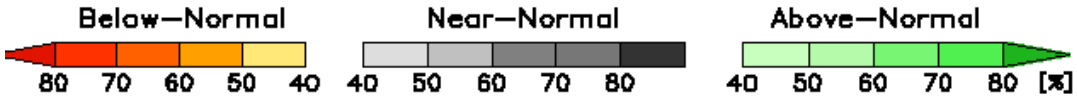
New product, using the CFSR reanalysis

Precipitation, real-time forecast NDJ2018/19



Precipitation, CFSR reanalysis NDJ2018/19, **NEW PRODUCT**





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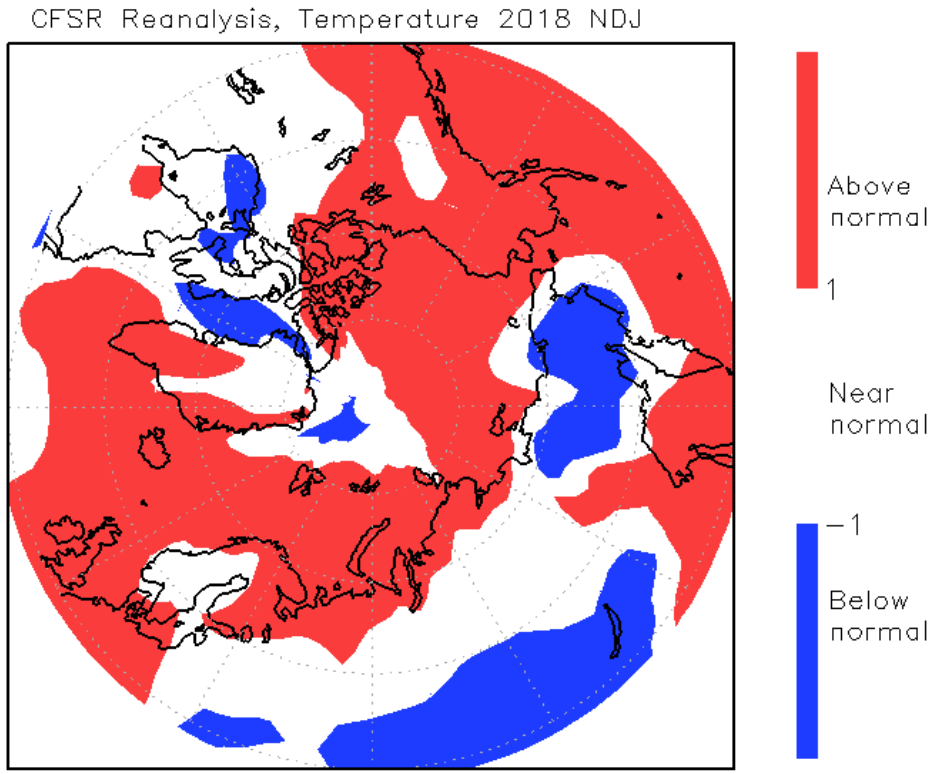
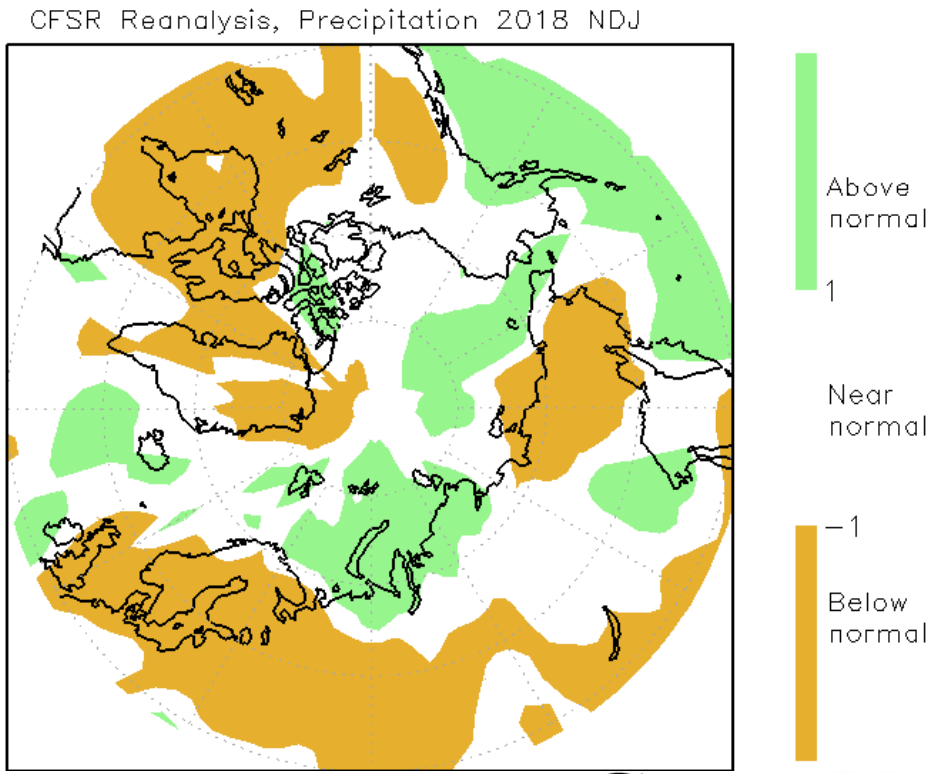
New product, alternative projections

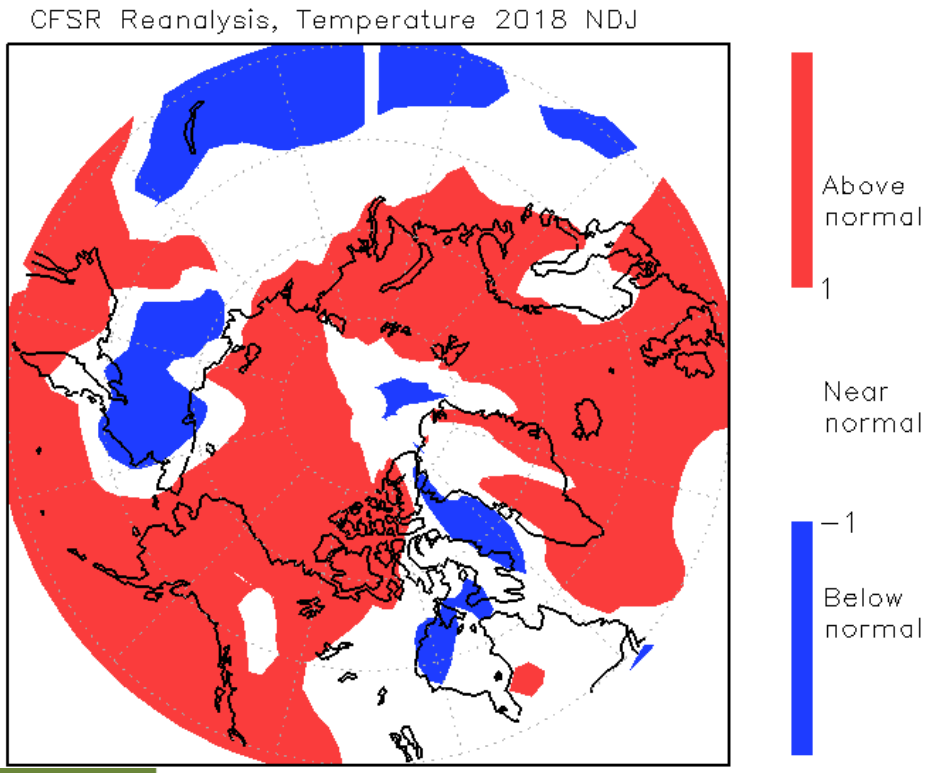
- Centered over Euro-Asian domain, between Kara and Barents seas.

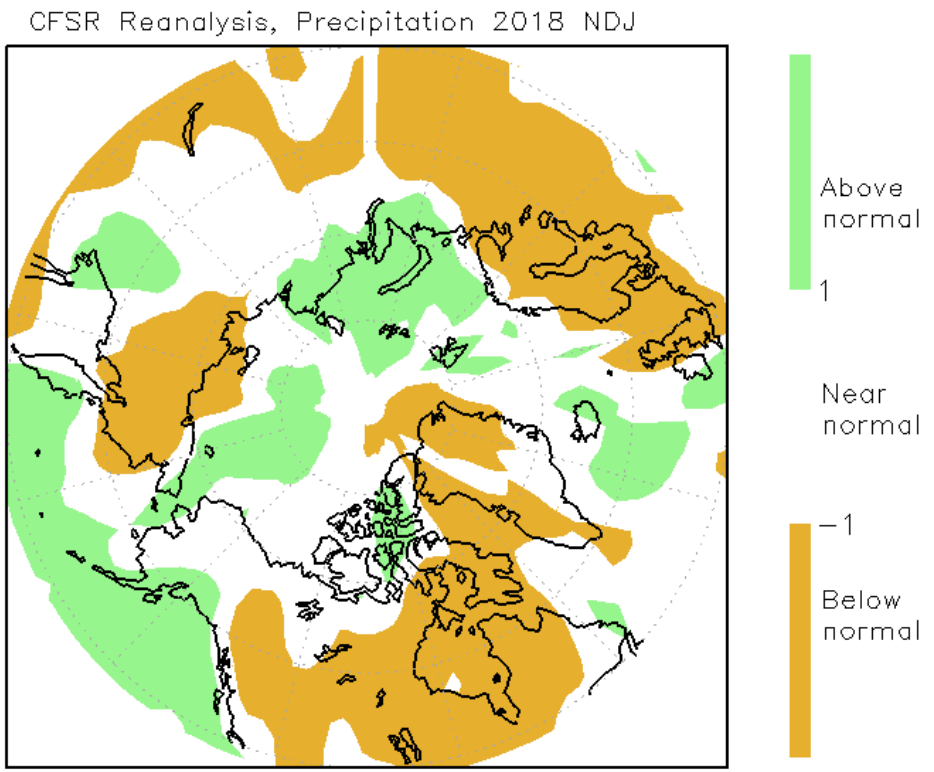




New product, alternative projections

- Centered over the North America.





Comments, propositions, more alternative projections???

To consider by PARCOF???

- Joined: CanSIPS-CFSv2 seasonal forecast can be used with lead 0 and lead 1

  PRO

  - Provides much skillful seasonal forecast despite only 2 models versus 12 MME.
  - We have gridded data, we can do objective evaluation, we can choose projections.

  CON

  - only 2 models (Canadian and US) are included