



ICIMOD

Empowering Women in Geospatial Information Technology

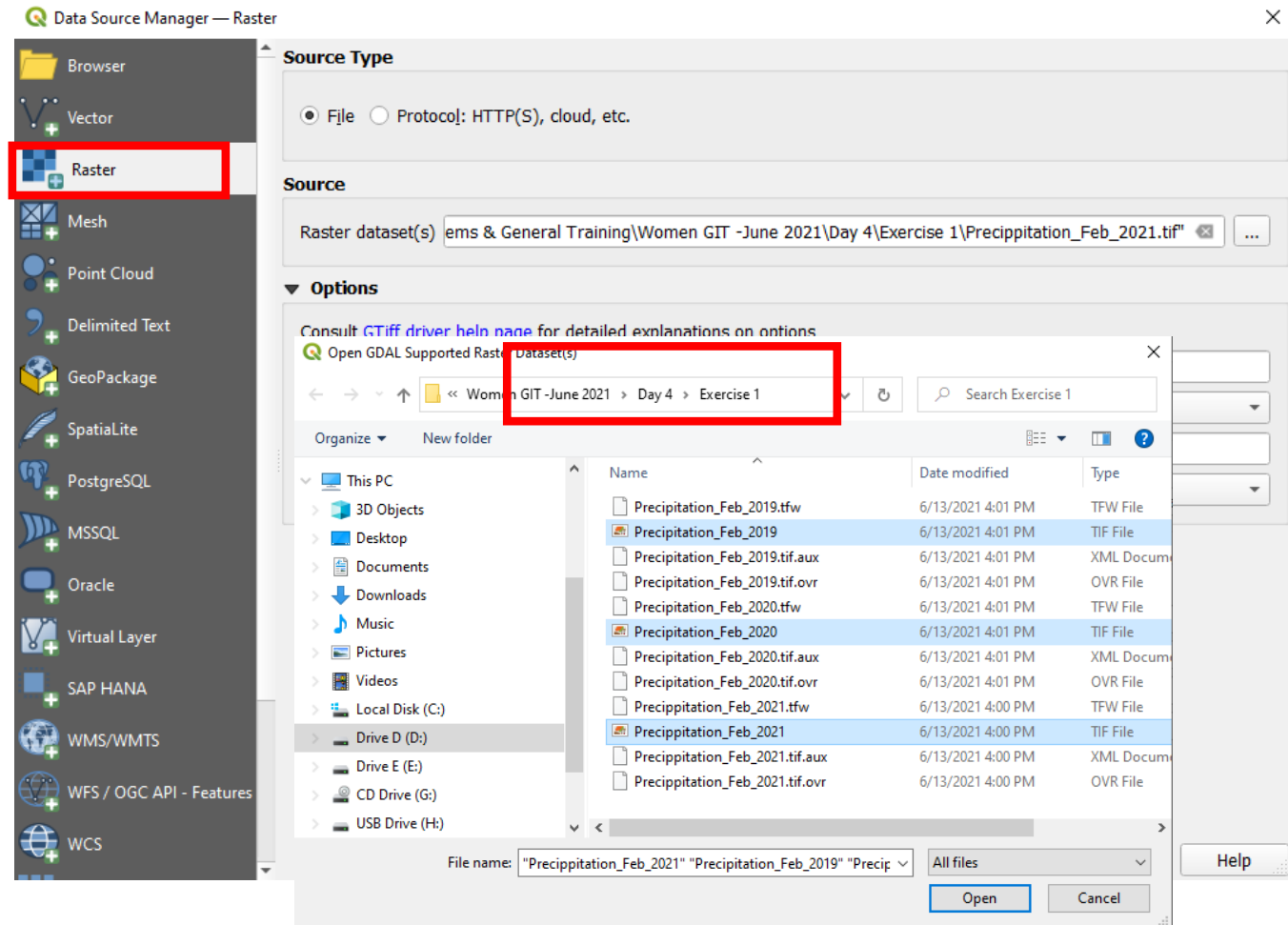
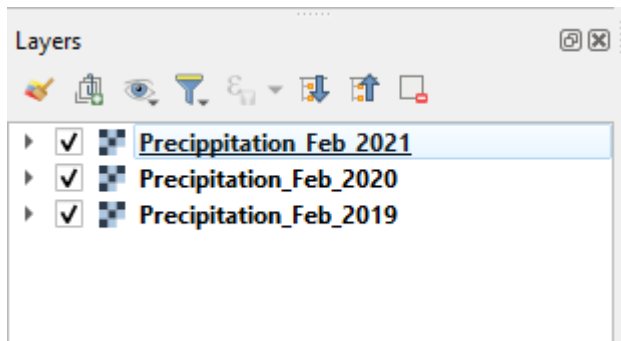
Mohammad Sharif Jalalzai

23rd June 2021

Drought Time Series Analysis in QGIS

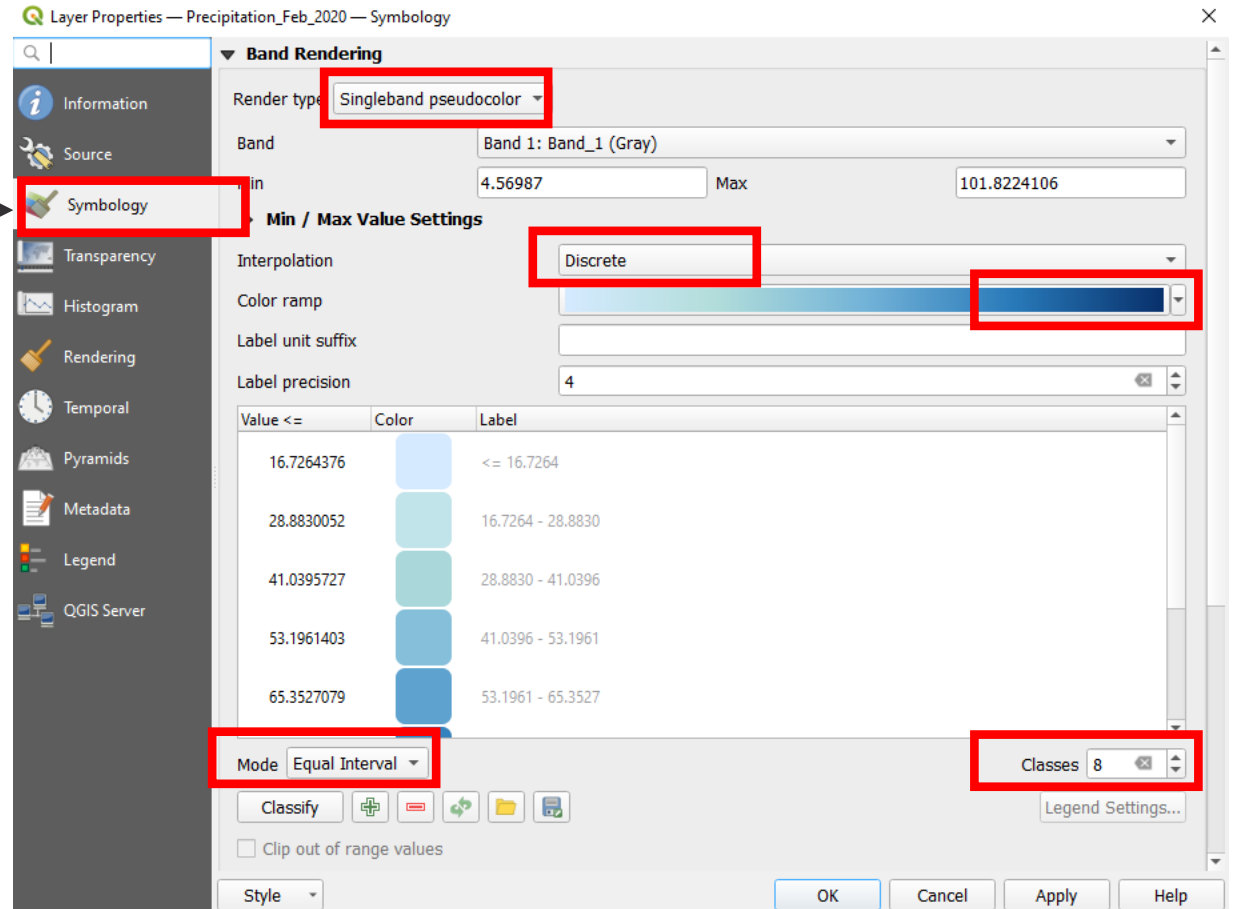
Drought Assessment in QGIS

- Open the **Precipitation Feb 2019**, **Precipitation Feb 2020** and **Precipitation Feb 2021** raster files in QGIS from the folder **Day 4\Exercise 2**



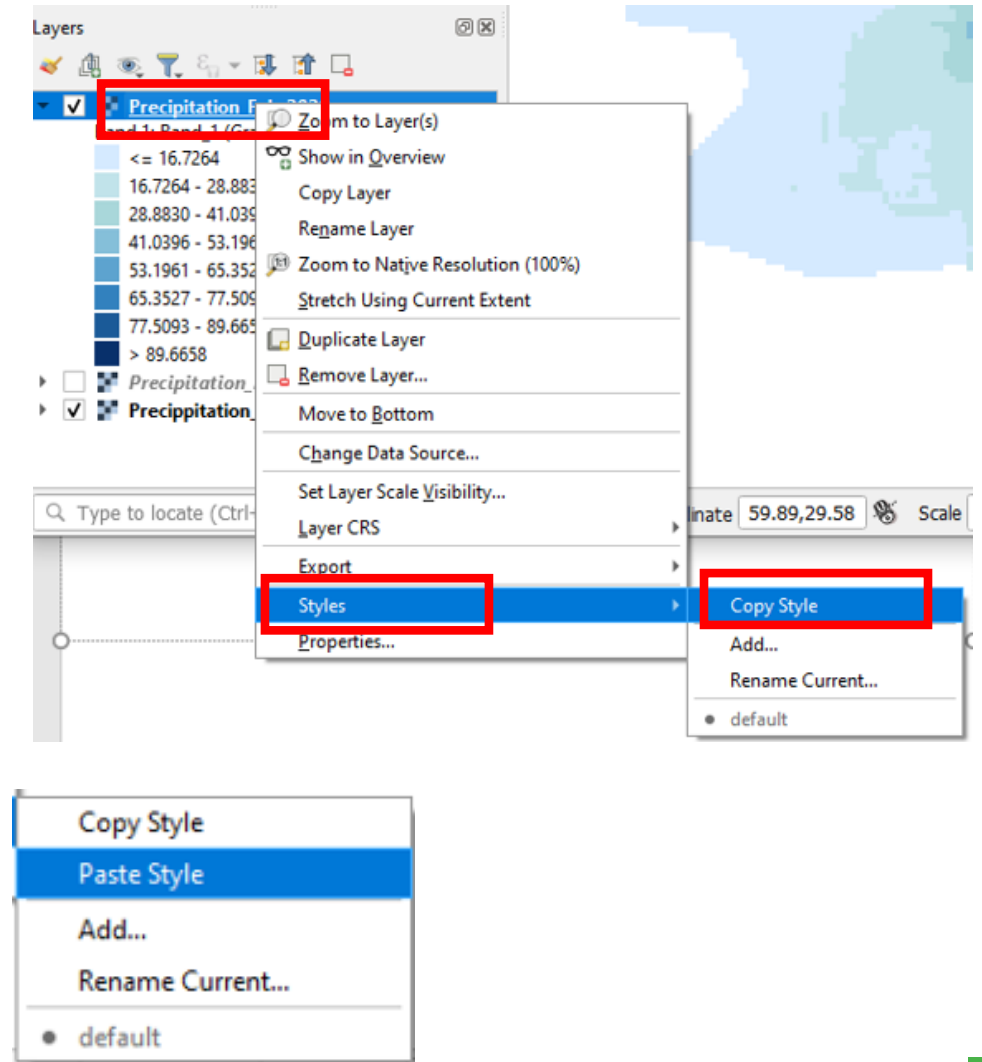
Drought Assessment in QGIS

- Apply the **Symbology** for the precipitation_Feb 2019 raster datasets and select the method as **Equal Interval**.
- Set the Interpolation method as **Discrete**, and choose the **Blue** colormap.



Drought Assessment in QGIS

- Copy the **Style** from Percipitation_Feb_2020 and Paste the same **Style** for other precipitation layers.
- Interpret and Compare the three period precipitation datasets.

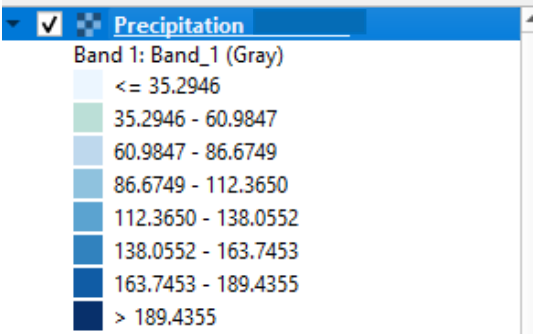
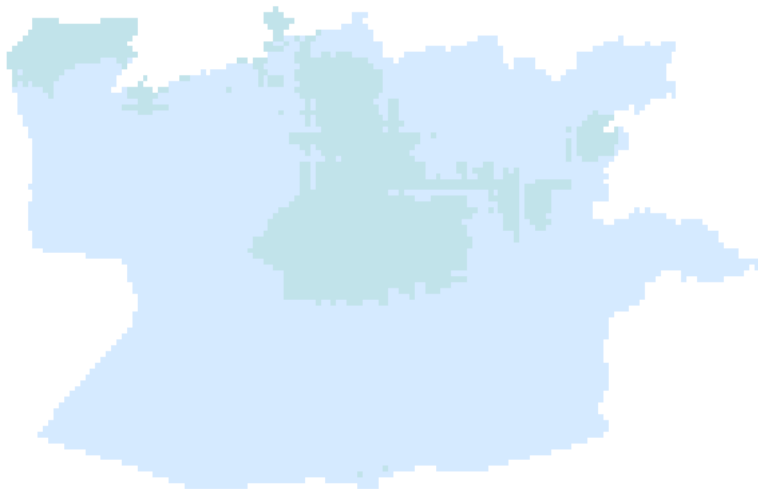
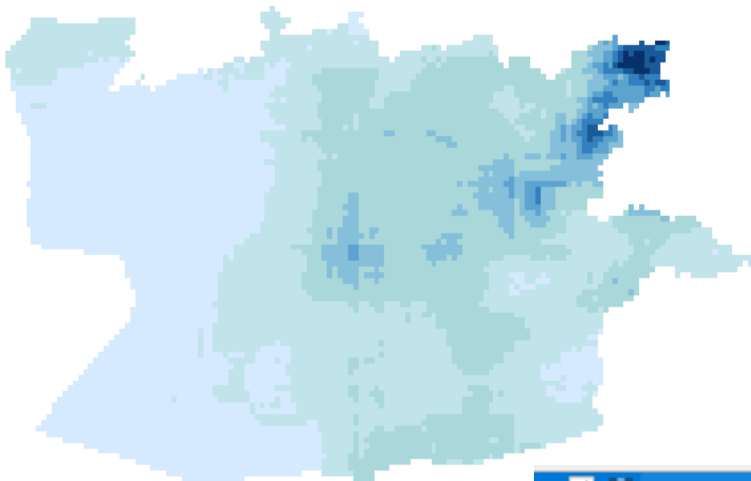
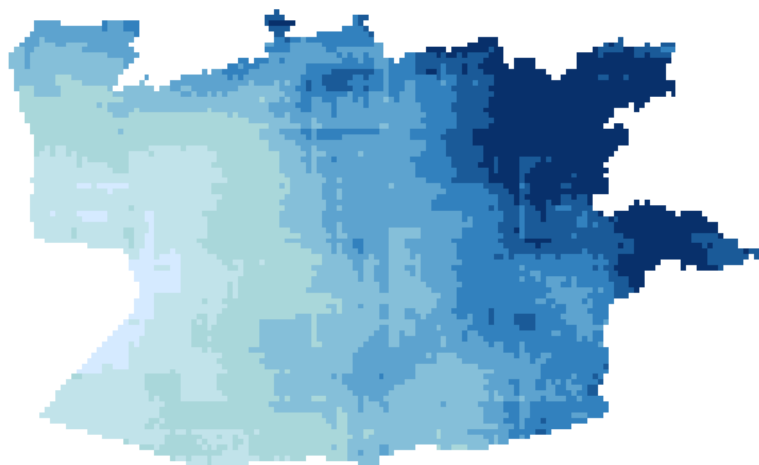


Drought Assessment in QGIS

South Region Precipitation Feb 2019

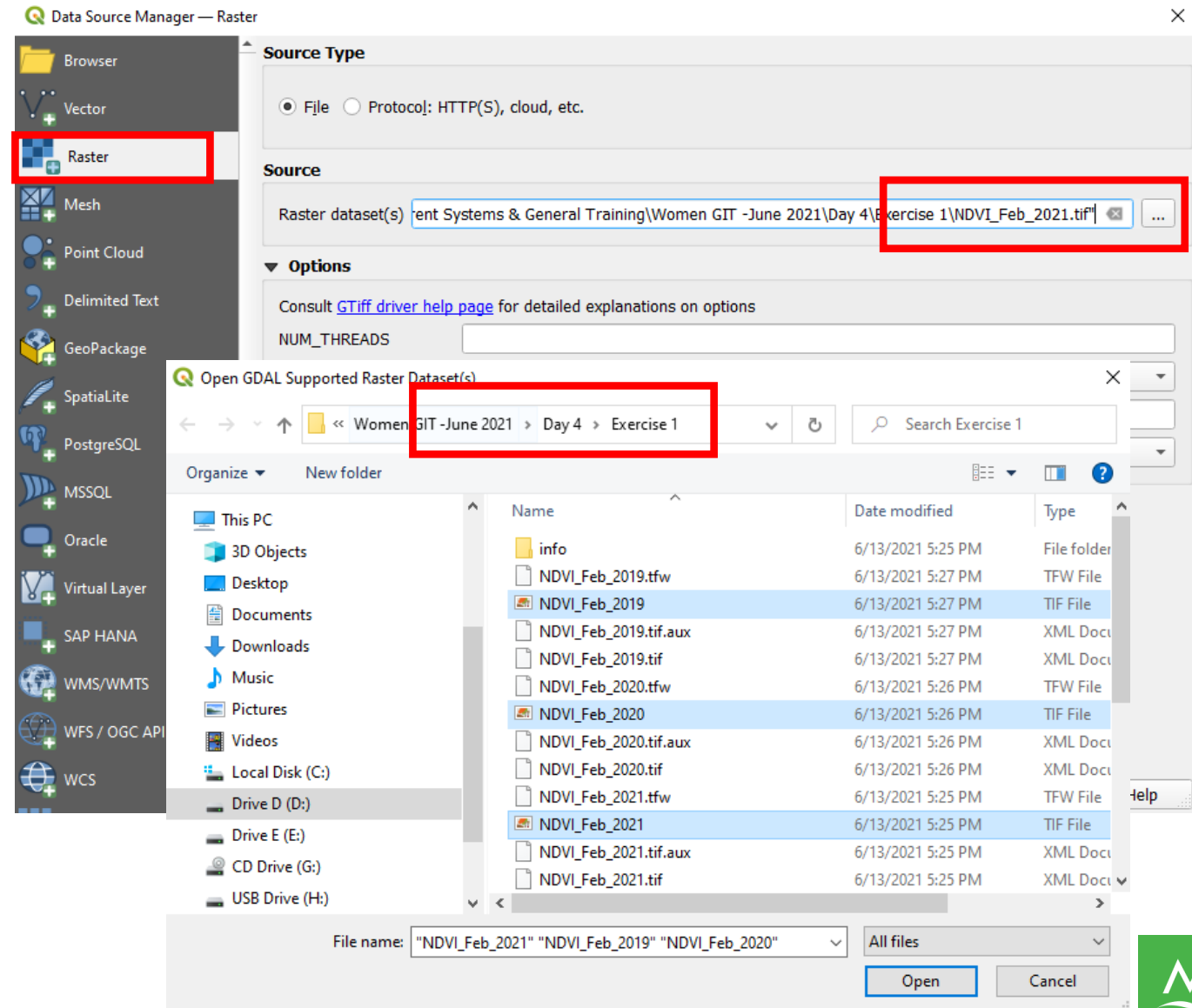
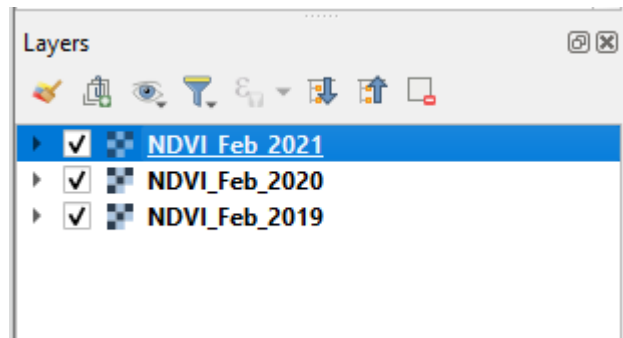
South Region Precipitation Feb 2020

South Region Precipitation Feb 2021



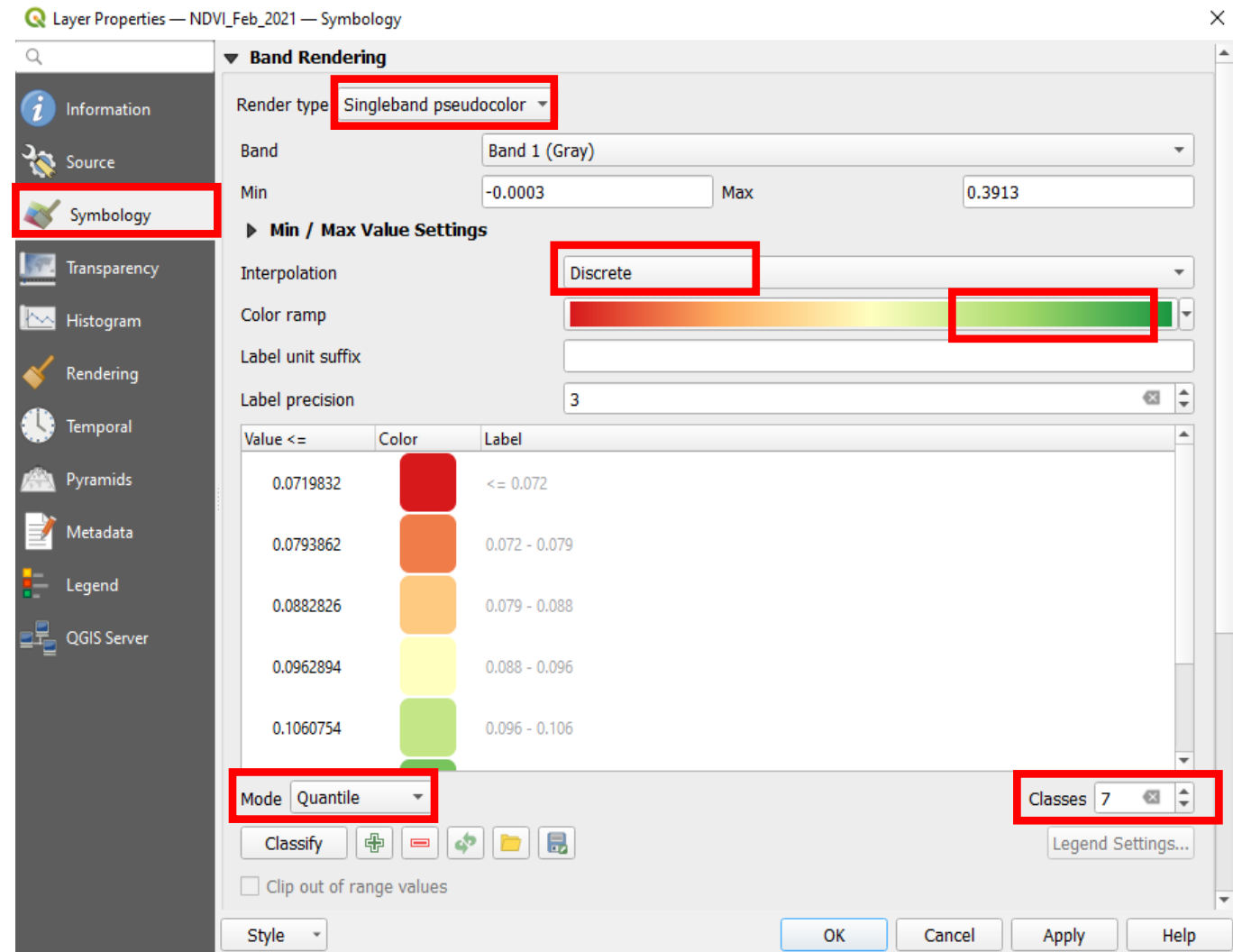
Drought Assessment in QGIS

- Open the **NDVI Feb 2019**, **NDVI Feb 2020** and **NDVI Feb 2021** raster files in QGIS from the folder **Day 4\Exercise 1**



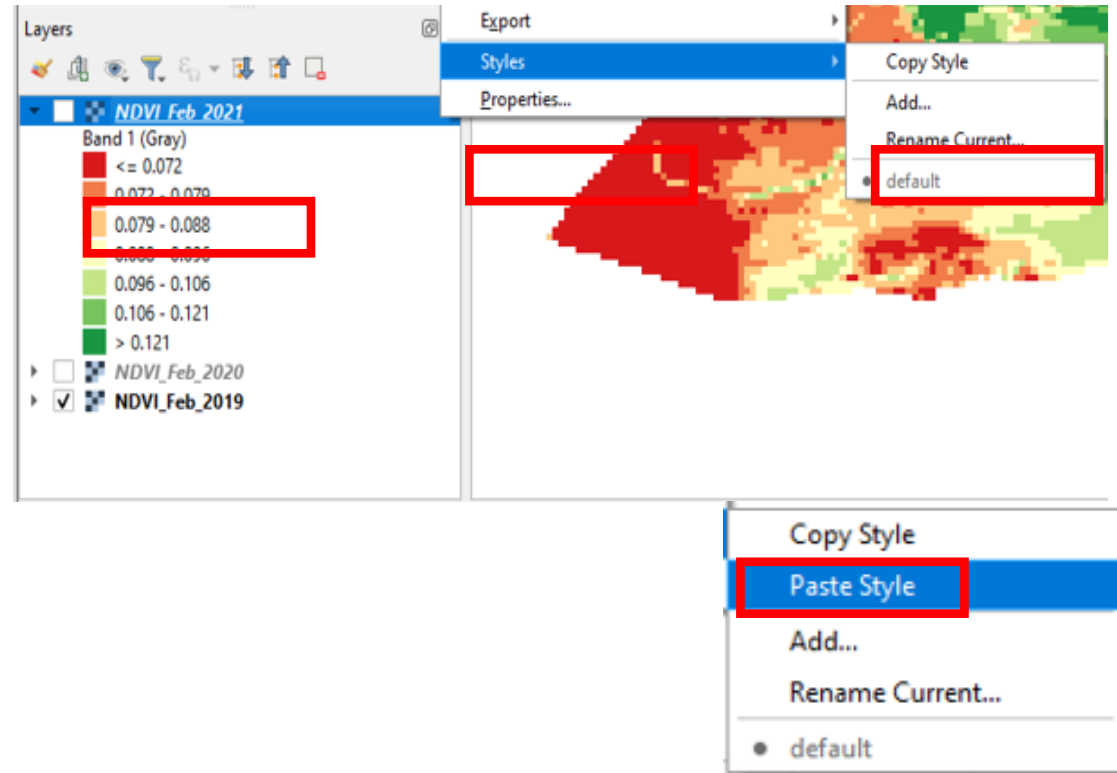
Drought Assessment in QGIS

- Apply the **Symbology** for the NDVI_Feb 2020 raster datasets, select the method as **Quantile** & choose the number of classes as 7.
- Set the Interpolation method as **Discrete**, and choose the **green** colormap.



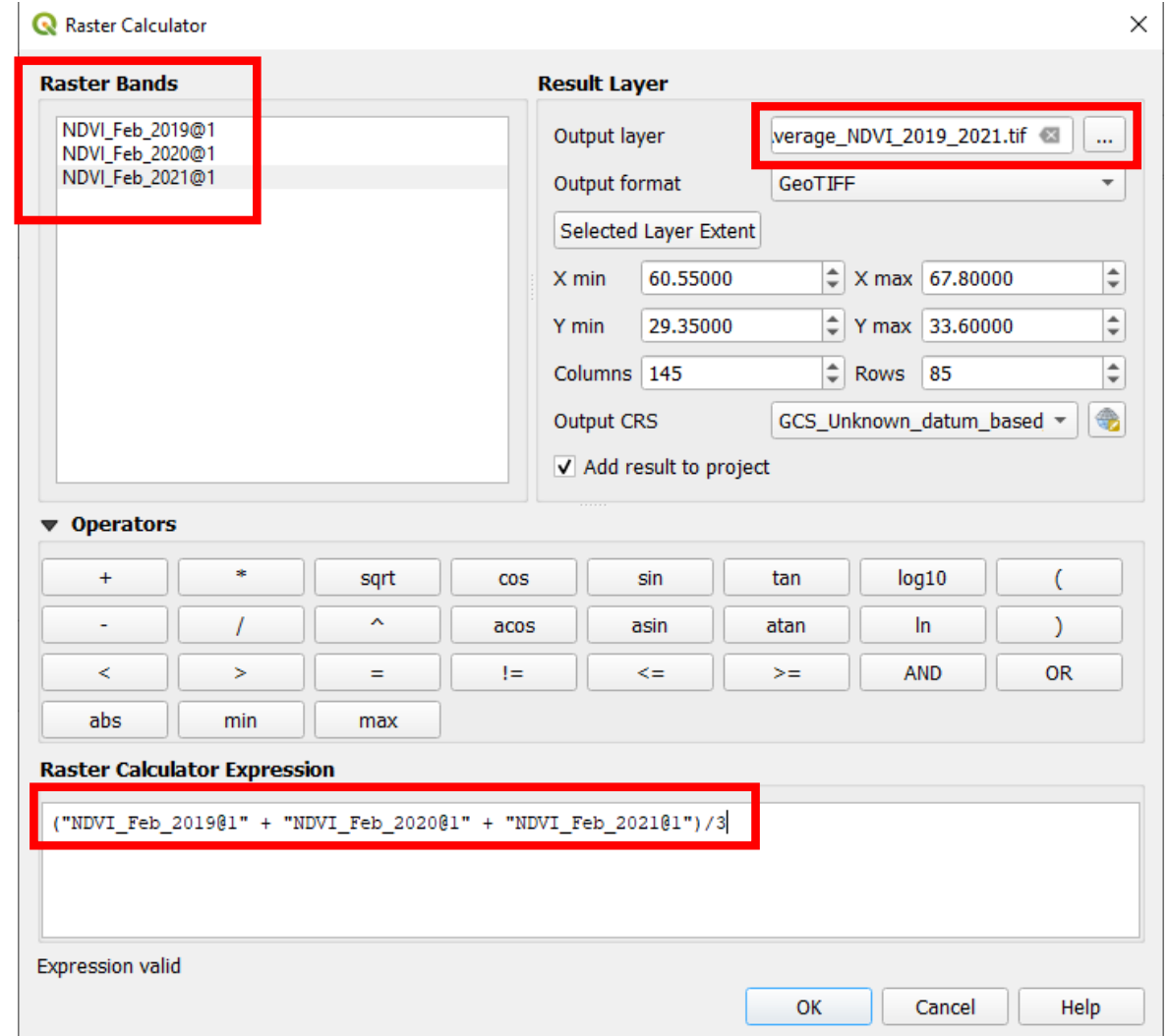
Drought Assessment in QGIS

- Copy the **Style** from NDVI_Feb_2020 and Paste the same **Style** for other precipitation layers.
- Visual Interpret and compare the three period vegetation datasets.



Drought Assessment in QGIS

- Open **Raster Calculator** from Raster Menu.
- Calculated the overall **mean** for the three NDVI raster datasets.
- Apply and write down the below expression in Raster Calculator,
$$\left(\text{"NDVI_Feb_2019@1"} + \text{"NDVI_Feb_2020@1"} + \text{"NDVI_Feb_2021@1"} \right) / 3$$



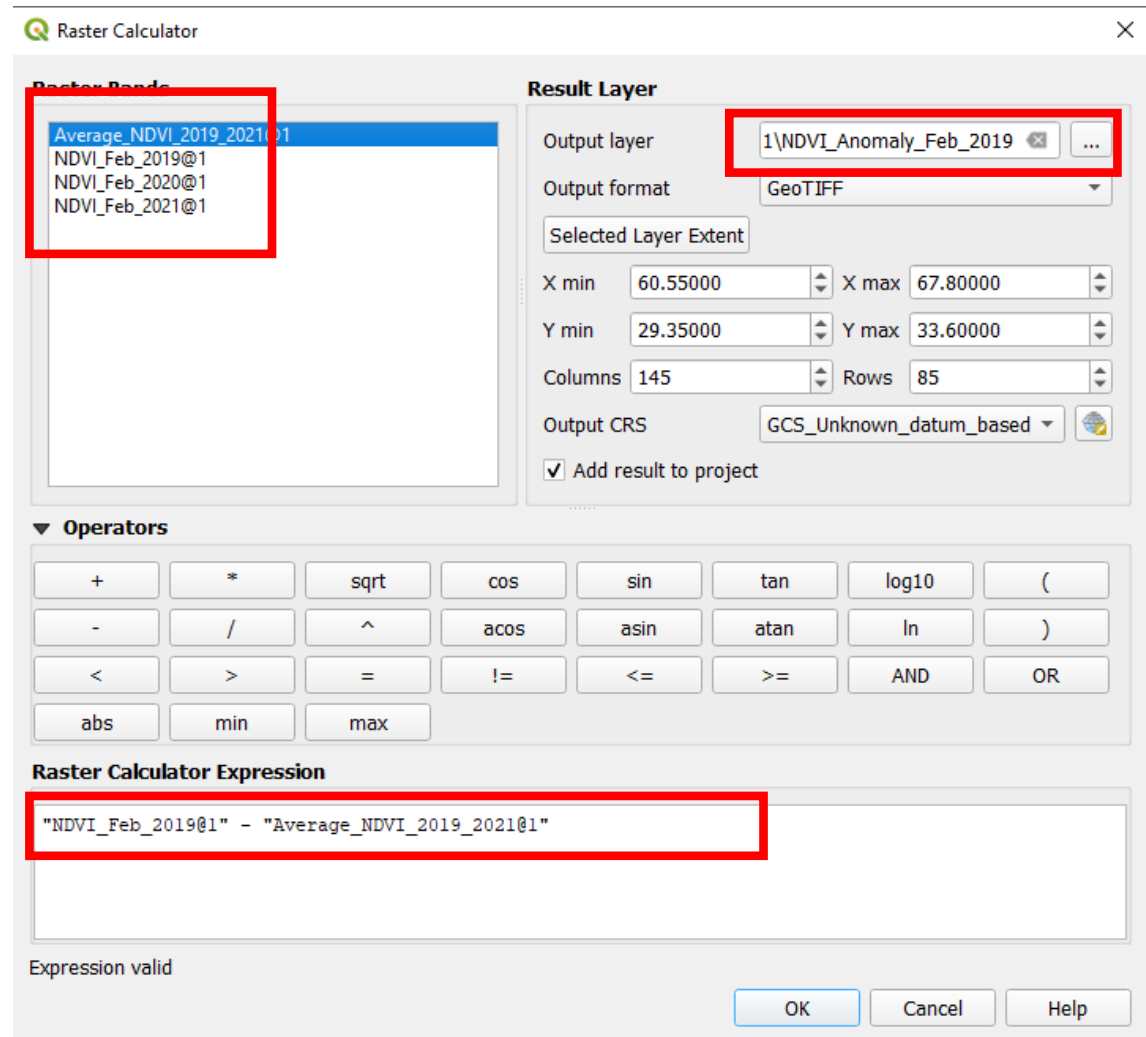
Drought Assessment in QGIS

- create an NDVI anomaly image from your NDVI images and overall NDVI Mean Image:

➤ Open **Raster Calculator** from Raster Menu.

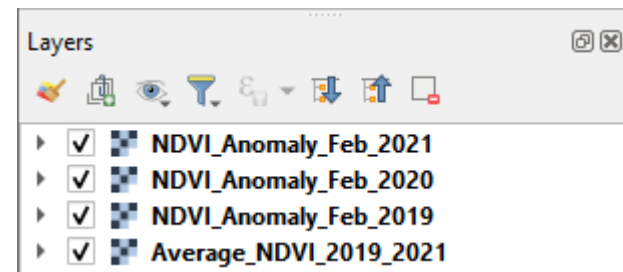
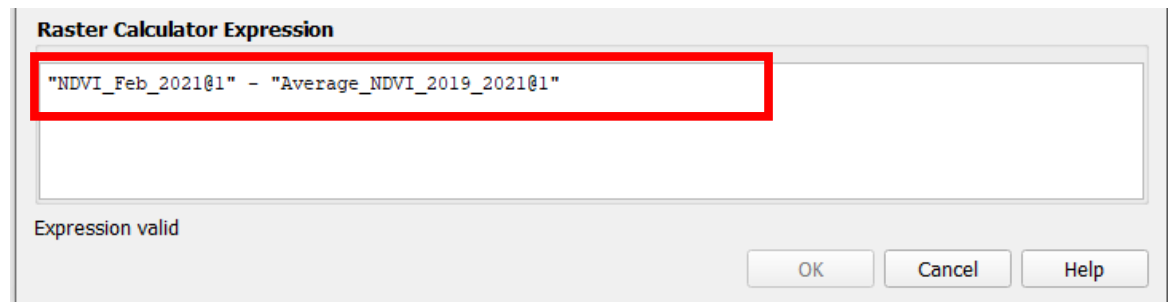
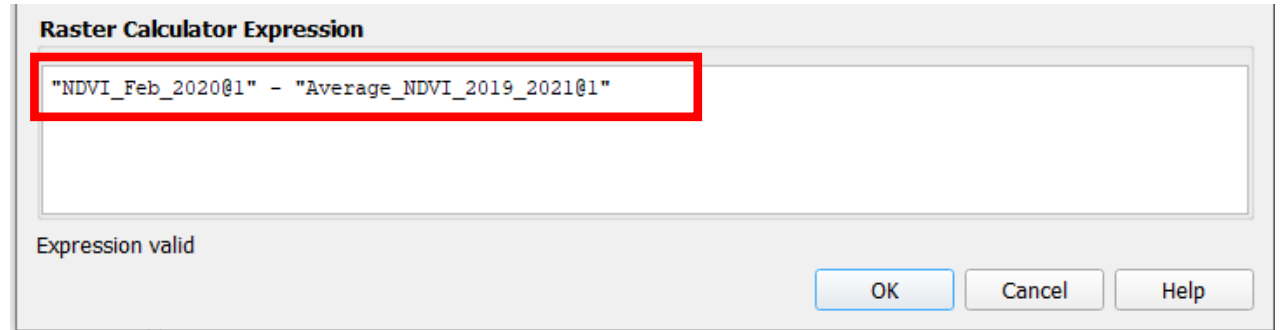
➤ Put this expression in the Raster calculator expression:

`("NDVI_Feb_2019@1" -
"Average_NDVI_2019_2021@1")`



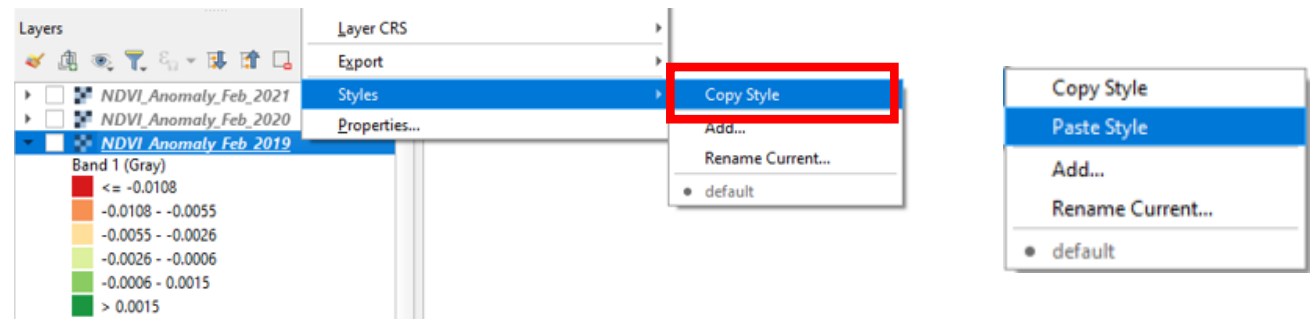
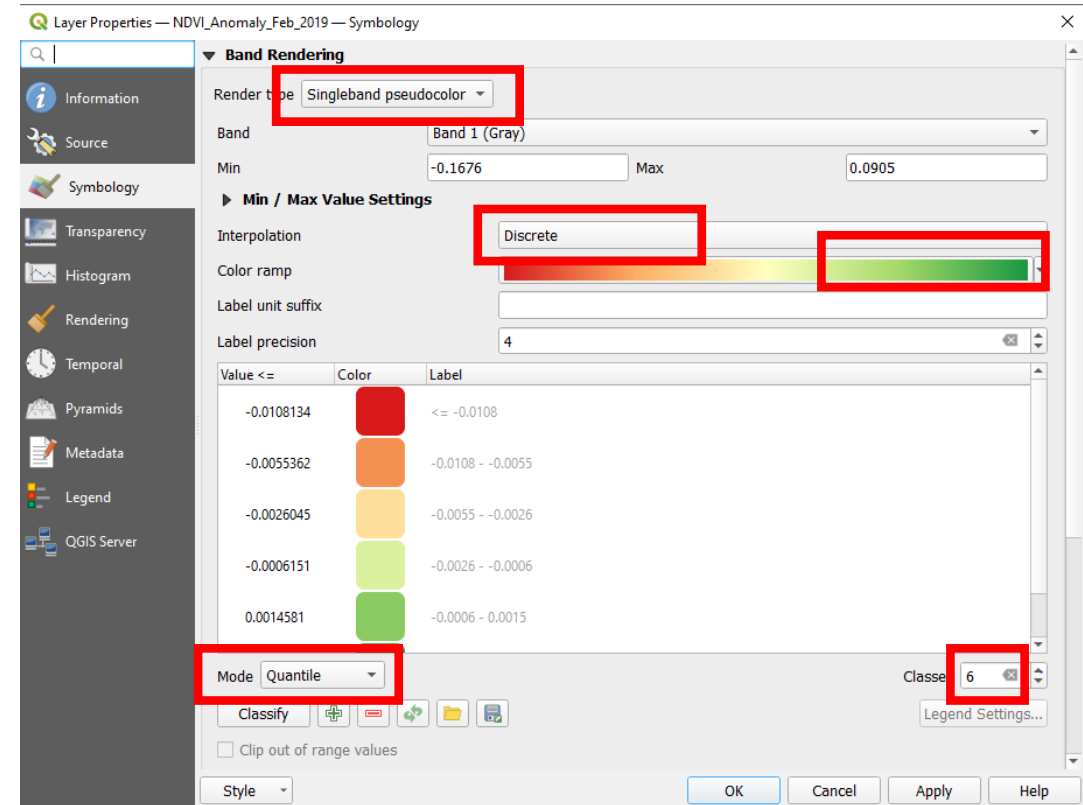
Drought Assessment in QGIS

- Open **Raster Calculator** from Raster Menu.
- Repeat the same process to create NDVI Anomaly for Feb 2020 and Feb 2021 as well.
 - ✓ ("NDVI_Feb_2020@1" - "Average_NDVI_2019_2021@1")
 - ✓ ("NDVI_Feb_2021@1" - "Average_NDVI_2019_2021@1")



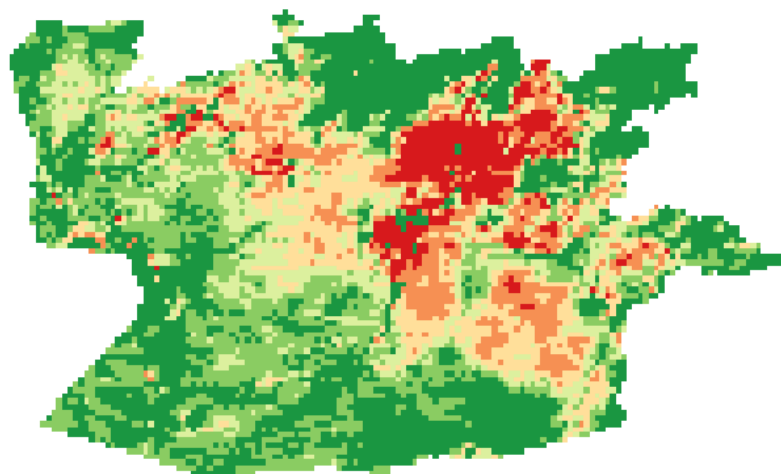
Drought Assessment in QGIS

- Apply the **Symbology** the NDVI Anomaly FEB 2019 raster dataset, select the method as **Quantile** & choose the number of classes as 6.
- Set the Interpolation method as **Discrete**, and choose the red to green **colormap**.
- Apply the same **Symbology** for the remain two NDVI Anomaly raster datasets through Copy Style procedure.

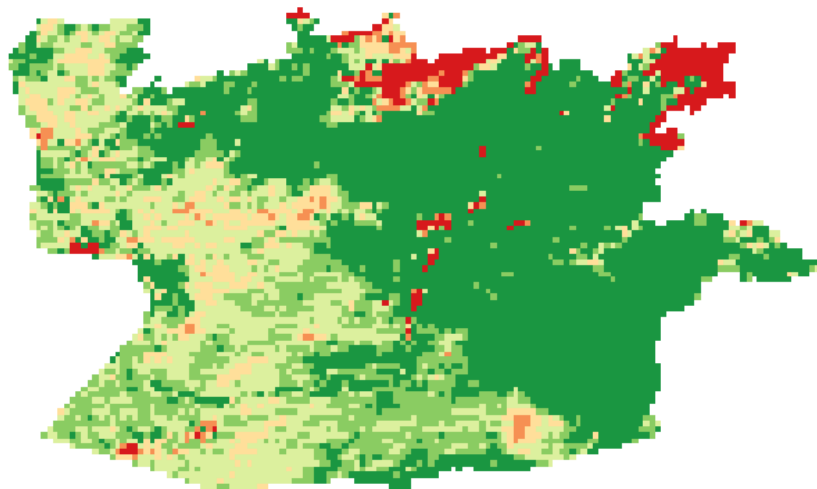


Drought Assessment in QGIS

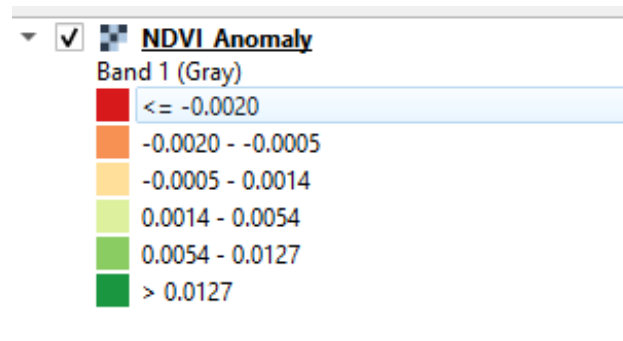
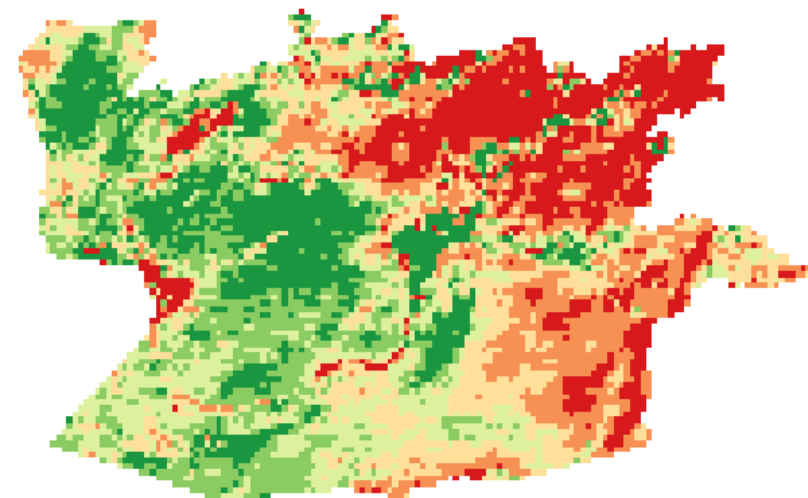
South Region NDVI Anomaly Feb 2019



South Region NDVI Anomaly Feb 2020



South Region NDVI Anomaly Feb 2021





Thank you

Let's protect
the pulse.