

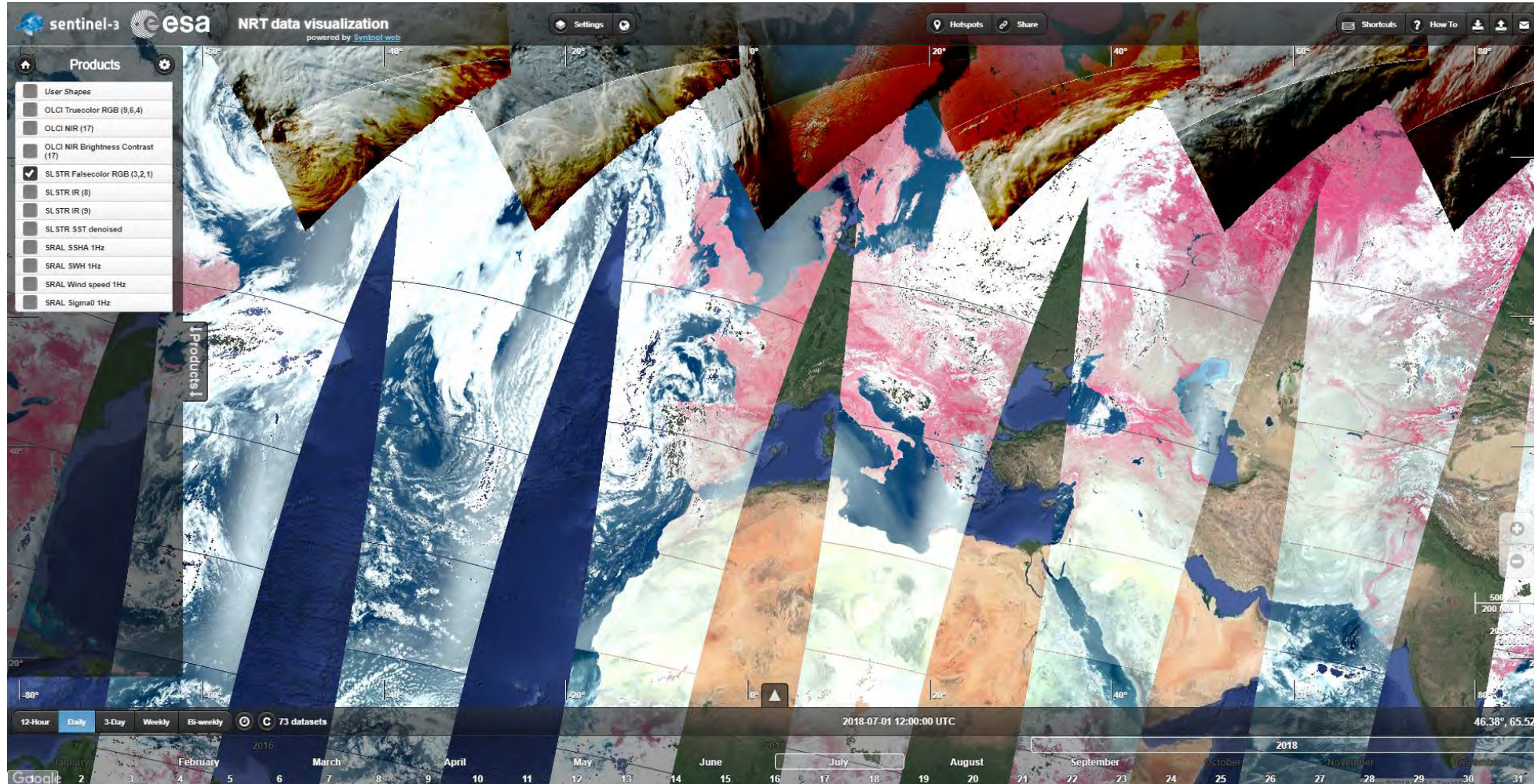
# Objectives

**To understand land processes on inter- and intra- annual basis using Sentinel-3 datasets**

- **You will analyse land parameters derived from Sentinel-3 in 2018 using SNAP**
- **Your analysis will enable you to:**
  - **Understand the variability of land surface temperature (LST) over different land types**
  - **Use vegetation indices (NDVI) to monitor crop patterns over varying timescales**
- **Each group will report results in feedback session at the end of the practical**

# Getting Started

- <https://s3view.oceandatalab.com/>





# Analysis

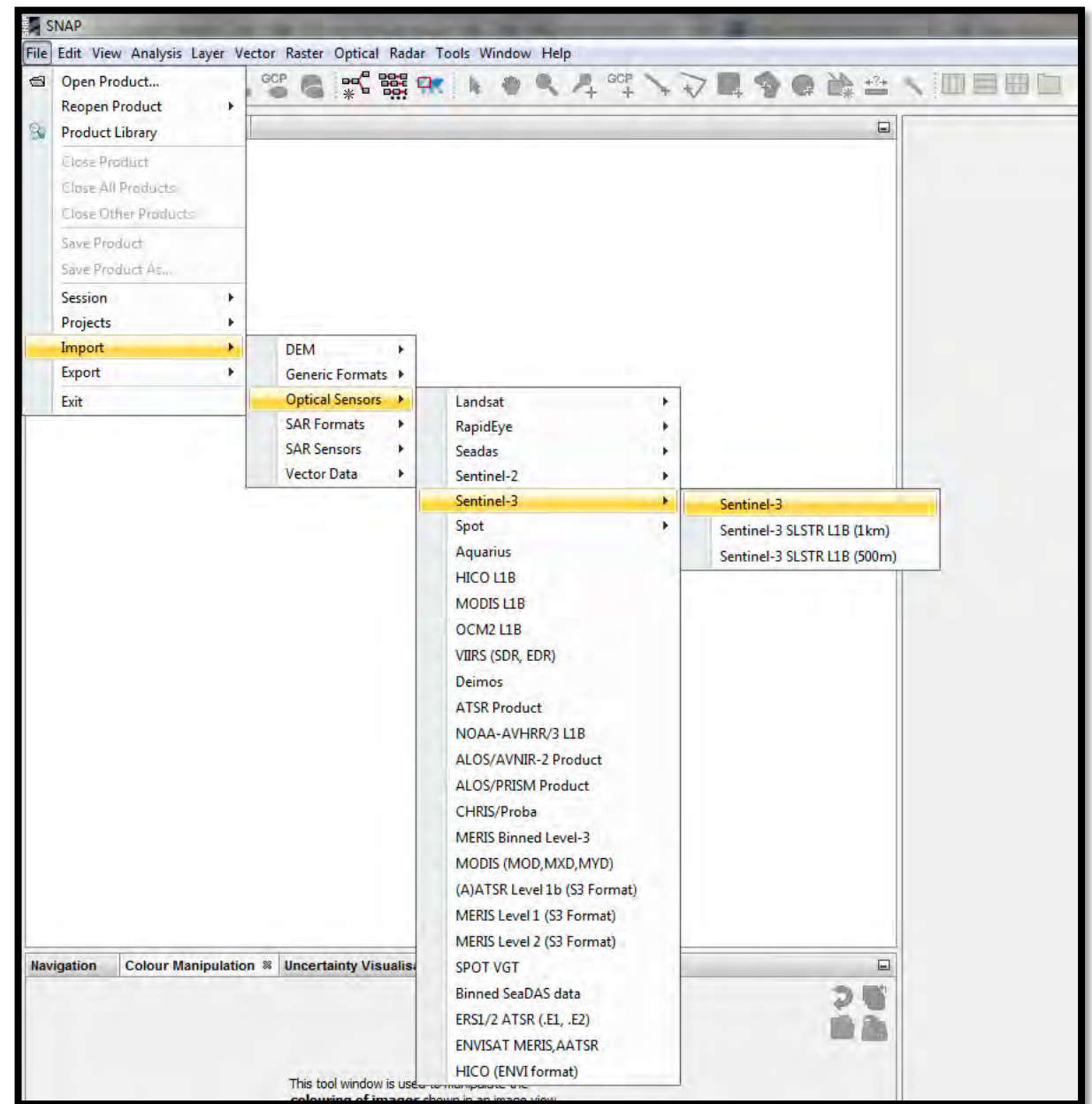
## Open SNAP

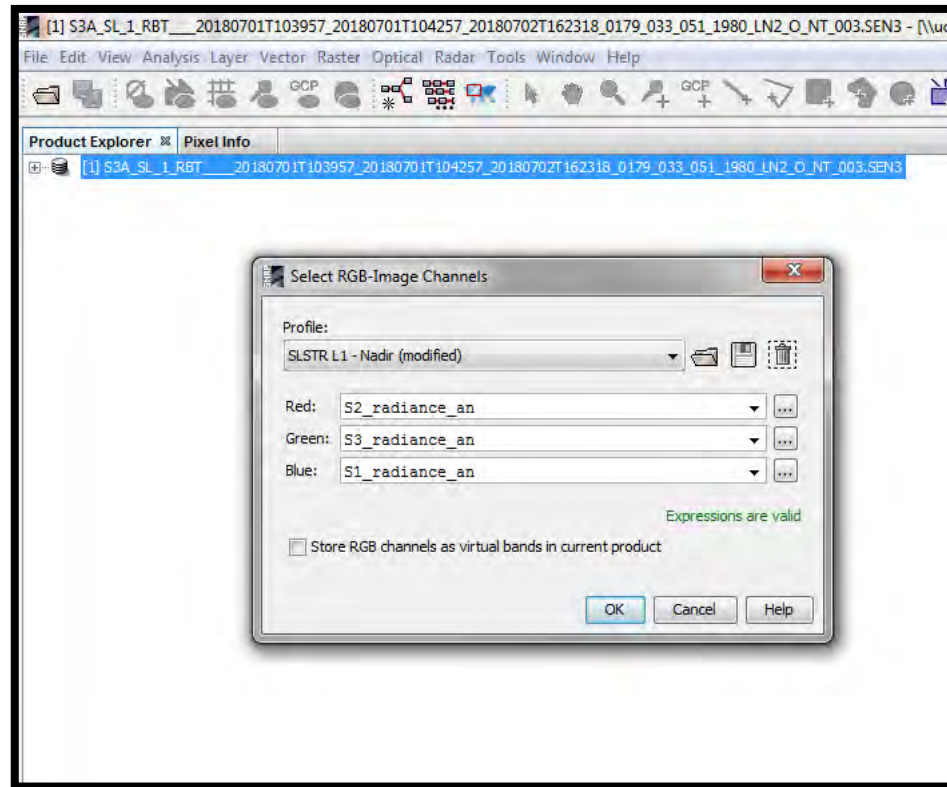
## Select the file:

S3A\_SL\_1\_RBT\_\_\_\_20180701T090158\_20180701T090458\_20180702T135411\_0179\_033\_050\_2160\_LN2\_O\_NT\_003.SEN3

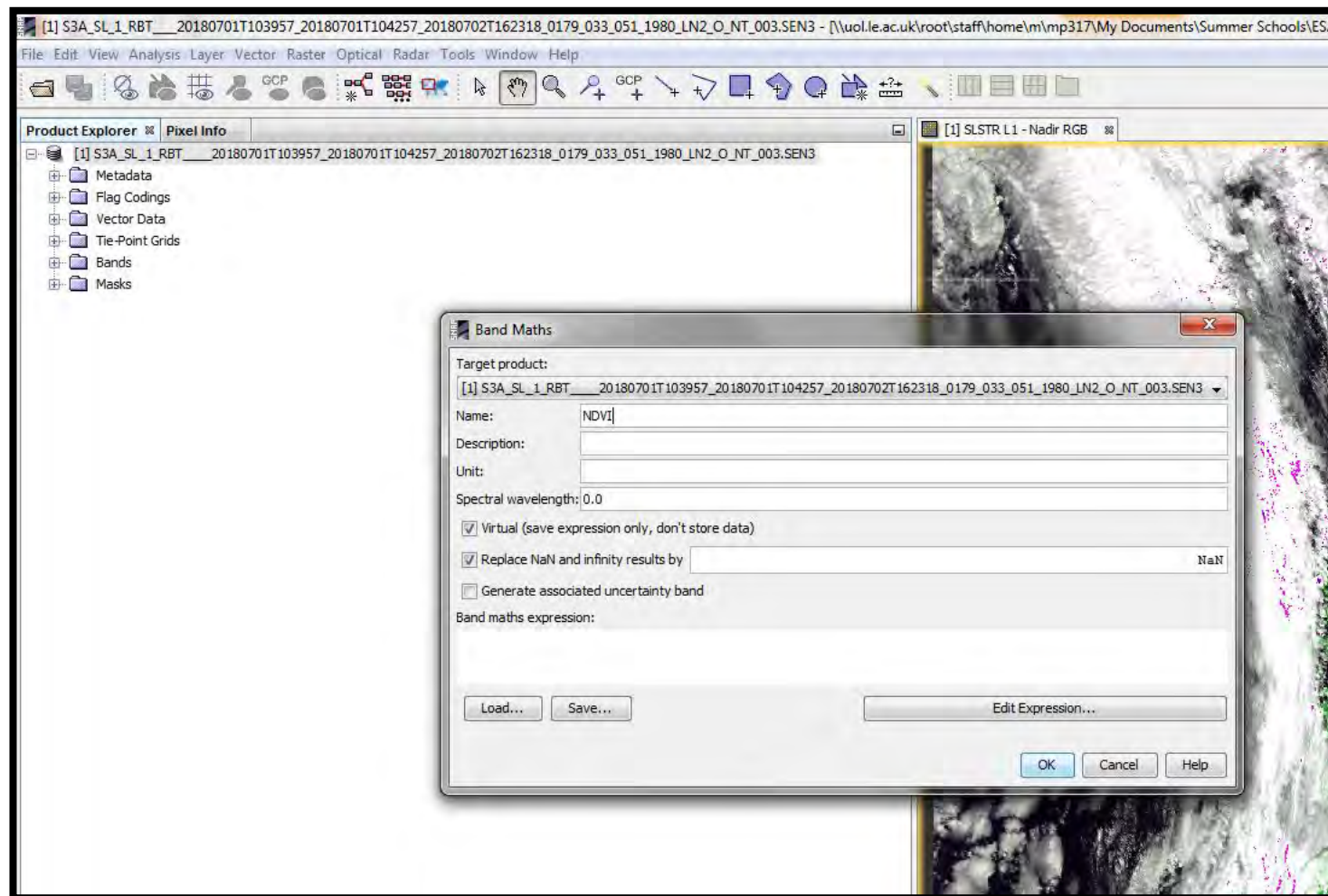
## Then select:

xfdumanifest.xmlsx





**Create and RGB of the VNIR Channels  
as demonstrated.**



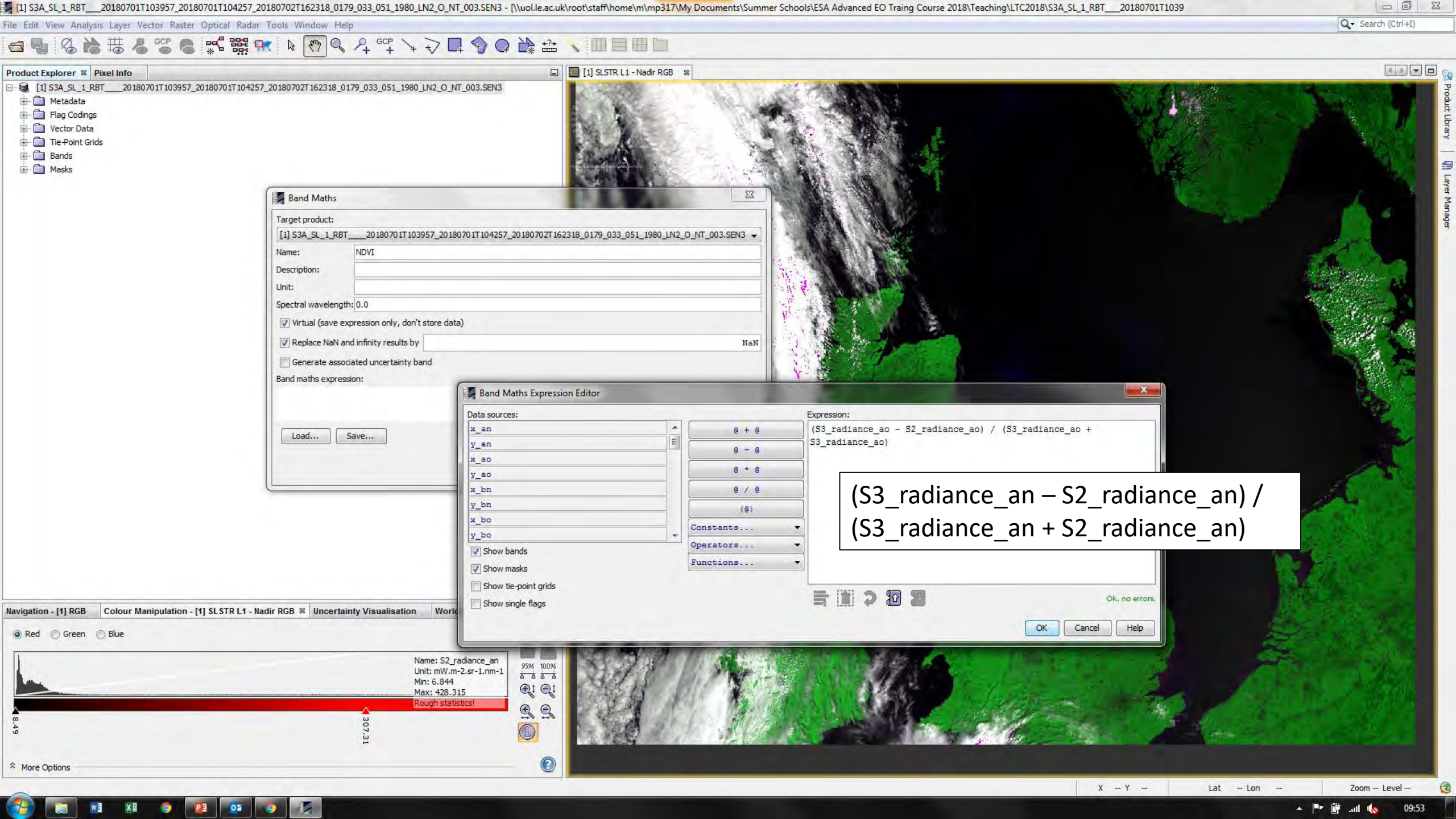
**Right click the product and select Band Maths.**

**Name the Band Maths: NDVI.**

**Select Edit Expression.**

**We will now calculate the NDVI using Bands 3 and 2. As shown in the following slide.**

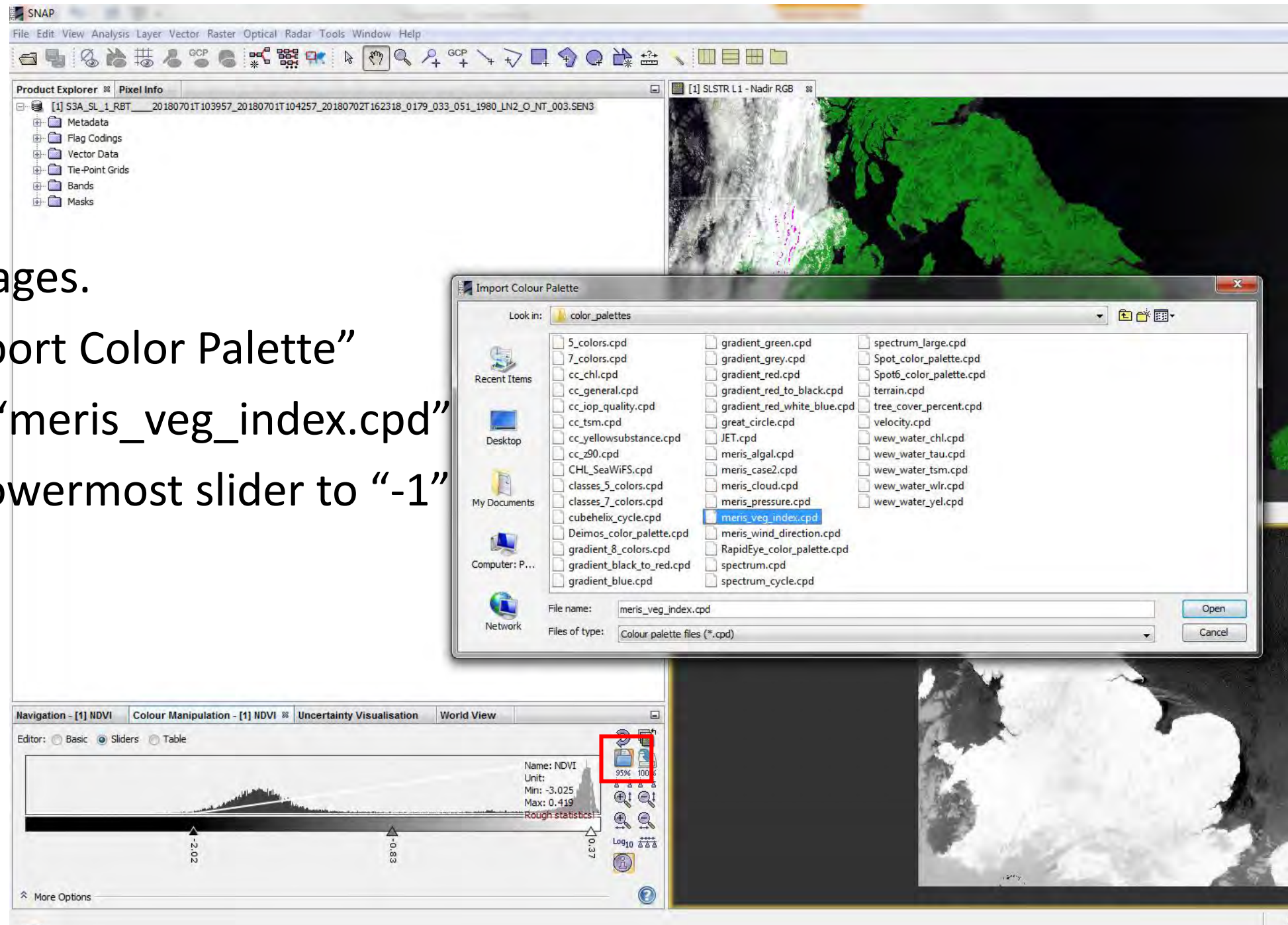




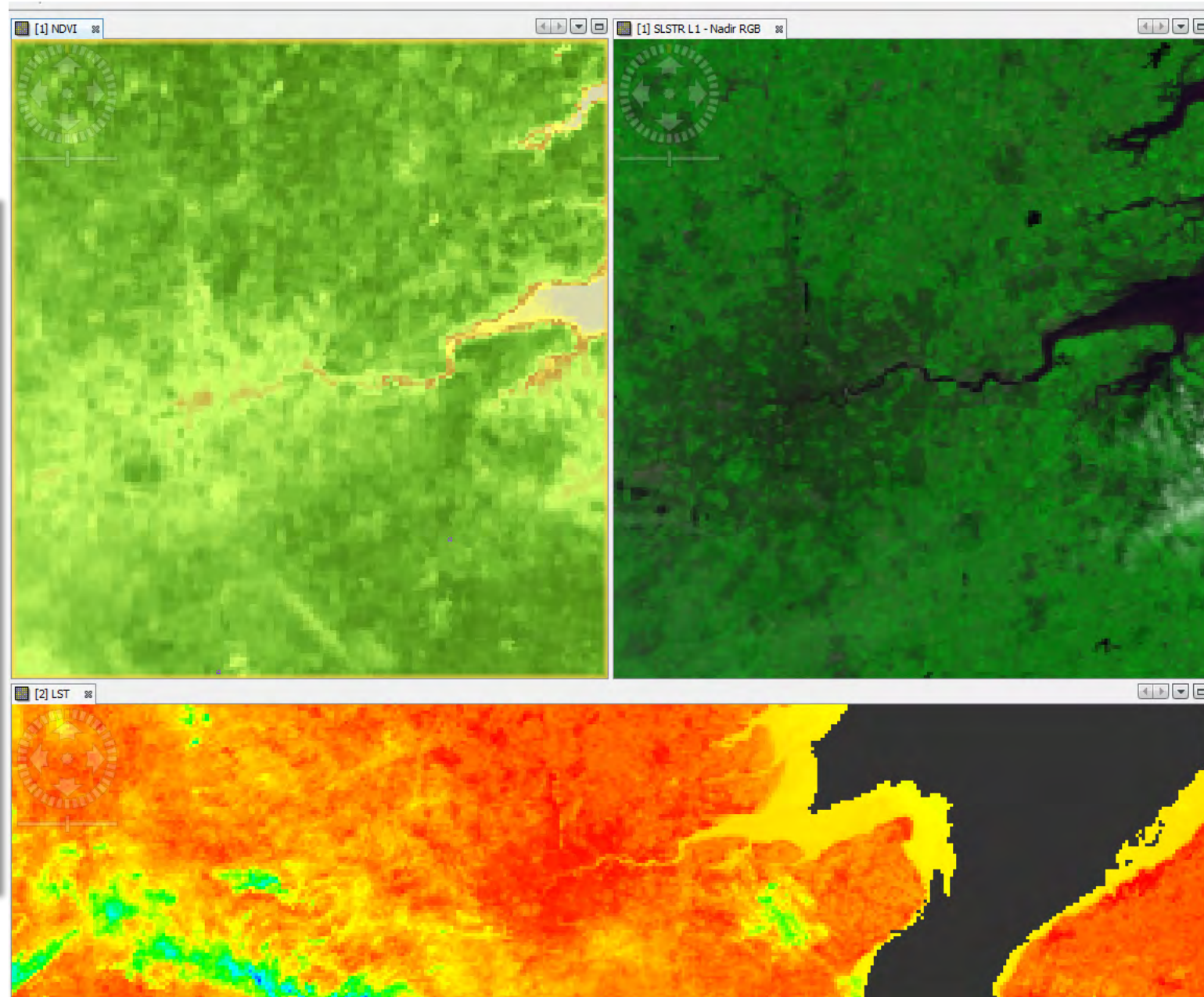
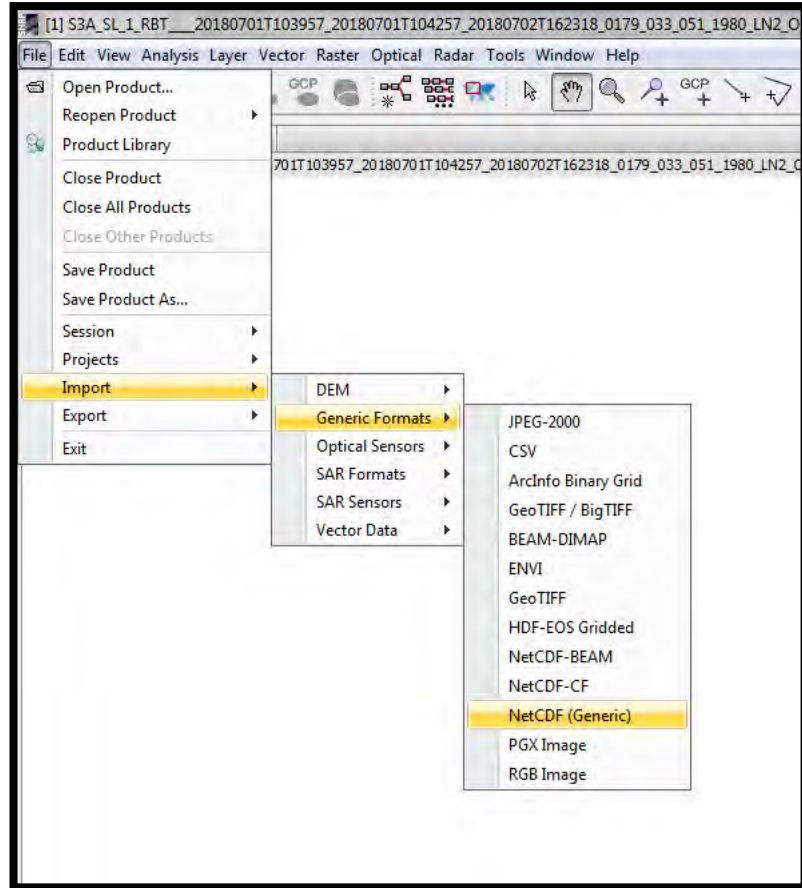


# Analysis

- Tile the images.
- Select “Import Color Palette”
- Select the “meris\_veg\_index.cpd”
- Scale the lowermost slider to “-1”



# LST Data

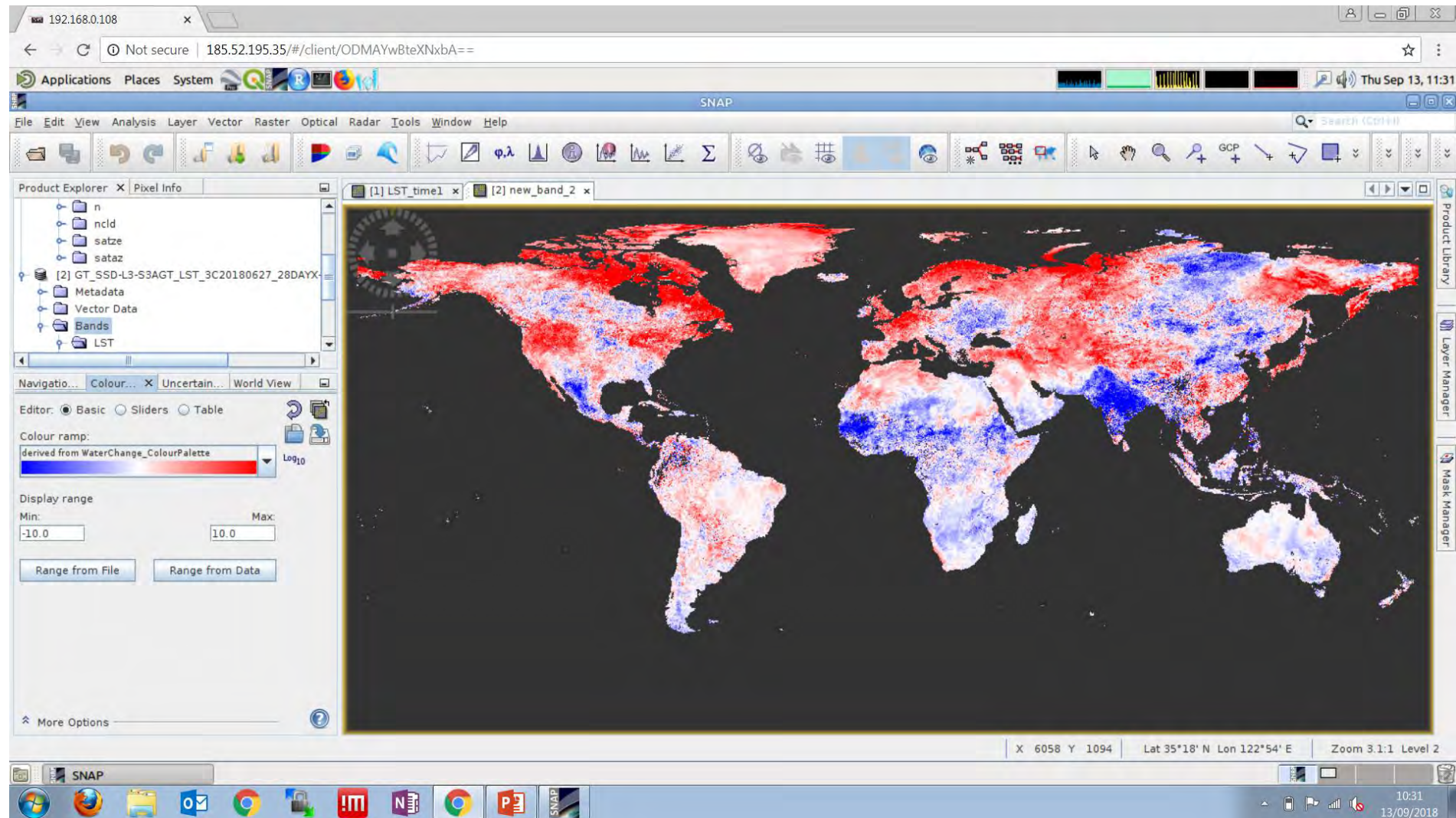




# Global LST Data

- Load global LST datafiles from  
/application/pi/LTC/day\_4/michael\_perry/practice/LTC2018
- Datafiles are of the form GT\_SSD-L3\*28DAY\*.nc
- In the “Bands” load daytime (LST\_time1) or night-time (LST\_time2)
- Load more than one and take differences between daytime (or night-time):
  - Right-click on product
  - Band\_maths... option
  - Edit\_expression
  - In Expression box: \$2.LST\_time1 - \$1.LST\_time1
  - OK (twice) and ignore warning
  - Select colour table (blue to red) and set range between -10 and +10

# Differences between monthly LST





# Things to think about

- Can you recognise differences in agriculture regimes?
- What differences in LST do you observe in the urban areas compared to bare or vegetated areas?
- What kind of LST enhancements do you observe in heat-wave Scenes?
- What do you notice about the surface coastal areas compared to those near urban or vegetated areas?
- What regions of the Earth experienced large +/- changes between months and what influences this?
- Share your results in the wrap up at the end of the session