Lab – Detecting and assessing dust clouds in MENA region, Jan 2026

1. **Open the EUMETView** viewer: https://view.eumetsat.int/productviewer?v=40876 and use any of the products useful for analysis (make sure you consult **FCI Dust RGB, True Colour RGB, Cloud Phase RGB and Cloud Type RGB**). For in-depth analysis of different RGB colours/components and recipes you can use following **tools**:
   a. **RGB colour tool**: https://resources.eumetrain.org/RGBguide/RGBColourTool_2_5.zip
   b. **R, G and B channel visualisation** (M-F tool): http://jupyterhub.fr-mf-general.s.ewcloud.host/loupes.html
2. Focus on the entire MENA region in the 2-3 day period:
   a. **Group A**: focus on **North Africa/Mediterranean Sea – 19-22 Jan**
   b. **Group B**: focus on **SW Asia and Arabian Sea – 21-23 Jan**

3. **The task:** General task is to **detect dust uplifting/clouds, dust sources, estimate thickness and height of the dust, and look if there are any DIBS clouds** in the region of interest. Answer some of the **key questions** provided below **for each group** (however, feel free to discuss or raise questions about any other related observation of yours that may come up during group discussion).

4. **Key questions – group A**:
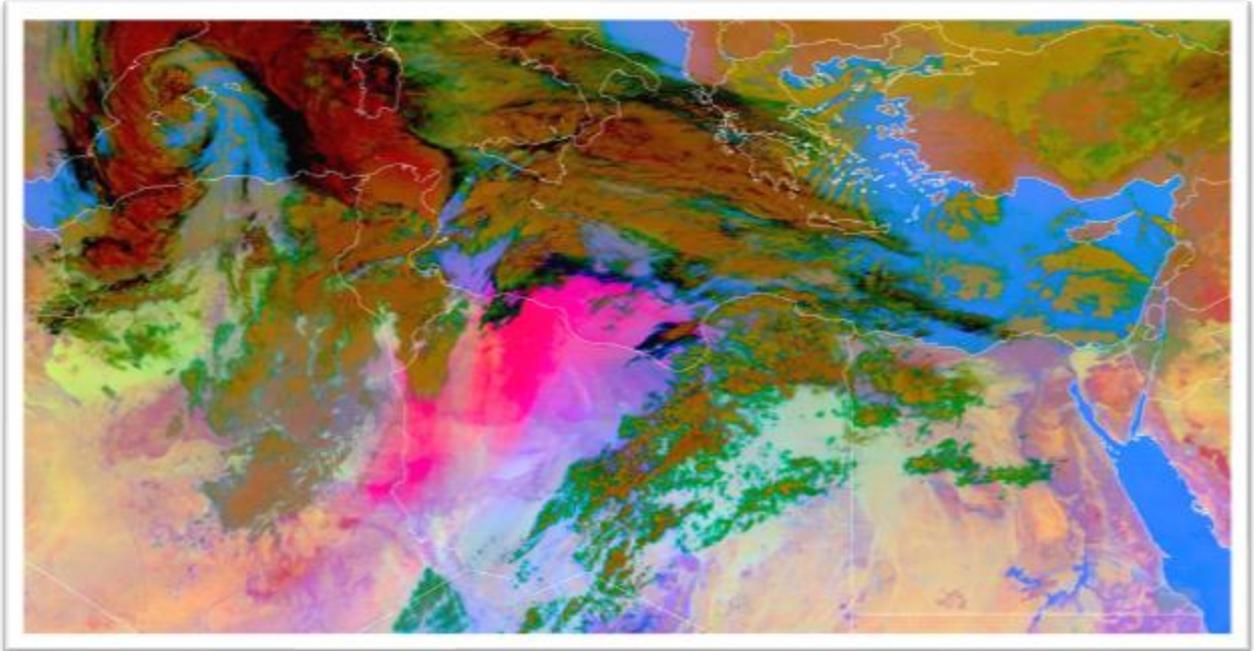
a. Where do you see a first sign of dust uplift in the observed domain? What kind of forcing is responsible for dust to be lifted (synoptic situation)? Is it thick/thin, high/low dust cloud?
b. Can you see dust clouds during mid-day of 19 Jan using only solar-based RGBs (True Colour RGB, Cloud Type RGB, Cloud Phase RGB)?
c. Zoom-in on to wavy formations in the dust cloud, SE Algeria at evening hours of 19 Jan (16:00Z). Can you see these formations in both solar-based RGBs (eg True Colour RGB) and infra-red based (Dust RGB)?
d. At what time does the dust cloud reach central Mediterranean Sea?
e. Focus on the dust cloud, now well over central Mediterranean Sea (20 Jan, 14:00Z) and compare different RGB products – which one outlines the dust layers the best? Where is the thickest dust (in which colour)?
f. Do you see dust anywhere at midnight (21 Jan at 00:00UTC)? How about at 06:00UTC? Where is majority of dust gone?
g. Do you see any dust clouds in the early hours of 22 Jan (at 07:00 UTC for instance)? Any strange looking / interesting clouds at that time (see also Cloud Phase RGB at this point in time)?
h. Observe the dust cloud in central-north Algeria in the last hours of 22 Jan (move imagery in time, hour-by-hour) – why does the colour of the dust cloud change close to midnight?

5. **Key questions – group B**:
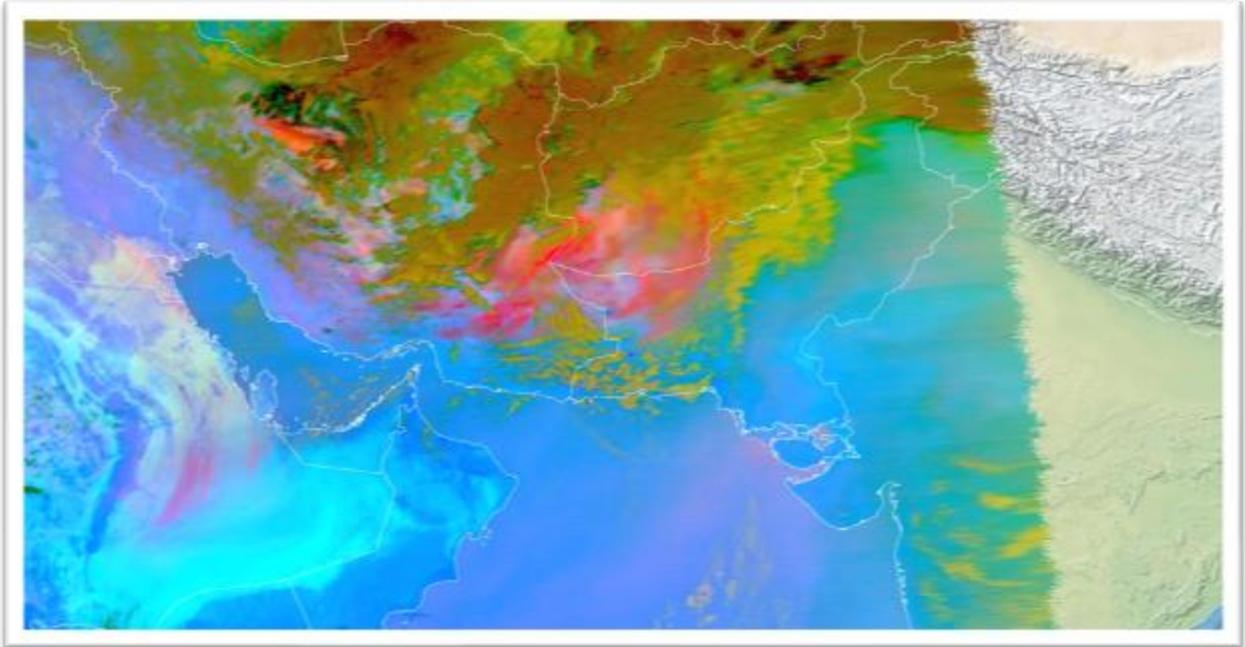
a. When and where do you see a first sign of dust uplift? What kind of forcing is responsible for dust to be lifted (synoptic situation)?
b. Where is the thickest dust around 11:00 UTC, 21 Jan?
c. Can you detect dust clouds at all around 18:00 UTC, 21 Jan?
d. Are there any dust-infused clouds (DIBS) in the observed domain? How do you recognise these (which products show them best)?
e. Looking at solar-channel RGBs only (eg True Colour RGB or Cloud Phase RGB) can you detect dust over SE Iran (over land)? Now compare to Dust RGB? Which one works better over the sea (which one give more details)?
   i. Related question: Do you find any difference in dust colour (in Dust RGB) over land vs over the sea (eg Iranian shore 'across Muscat')? If so, why?
f. Do you find any difference in dust colour between dust clouds over (predominately) Iran vs one over Afghanistan/Pakistan (check Dust RGB)? If they are different, why is that so?
g. Look at the dust clouds over SE Iran and W Pakistan in the evening hours of 23 Jan (eg around 12 UTC), what can you say about the thickness and height of different dust clouds (compare Dust RGB to True Colour RGB)?
   i. Bonus questions: why are dust clouds seen in other solar RGBs (to a degree, with Cloud Phase RGB and Cloud Type RGB), but not with Ture Colour RGB?