Lab: case 15 March 2008

Insert flash drive in USB port
Check letter of the flash drive: <L>
Open McVCast

1.   Set local ADDE servers

➢   McIDAS-V window, Tools **<Manage ADDE datasets>**
➢   Select **<Local Data**
➢   Select **<MSG>** Dataset
➢   Click **<Edit Dataset>**
➢   Directory: Browse to <L>:\Labs\20080315_dust_iraq
➢   Click **<Open>**
➢   Click **<Save Changes>**
➢   **Click <Ok>**

2.   Open MSG Natural Colours and Dust RGB images

➢   McIDAS-V Data Explorer window, **<Data Sources>** tag
➢   Satellite Imagery should be highlighted
➢   Server: select **<Local Data>**
➢   Dataset: select **<MSG>**
➢   Click **<Connect>**, wait
➢   Image Type: select **<SEVIRI>**
➢   Times: select **<Absolute>**
➢   Select the 13:00 UTC image
➢   Click: **<Add Source>**

➢   Field Selector window: select **<SEVIRI RGB>**, **<NCOL>**, wait
➢   Displays window: select **<Advanced>** tag
➢   Put **<Magnification>** slider to maximum (1)
➢   Select **<Region>** tag
➢   Select region around Iraq (see example below)
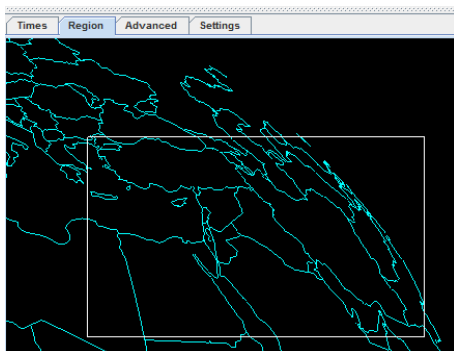
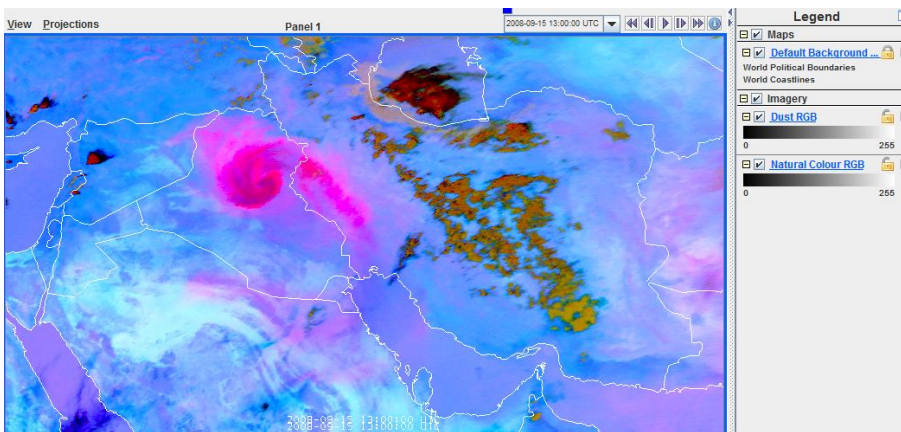➢   Click **<Create Display>**, wait

➢   In the **<Select input>** window, select minrefl=0 and maxrefl=40, click **<OK>**
➢   Zoom in on Iraq, the image should look like this:
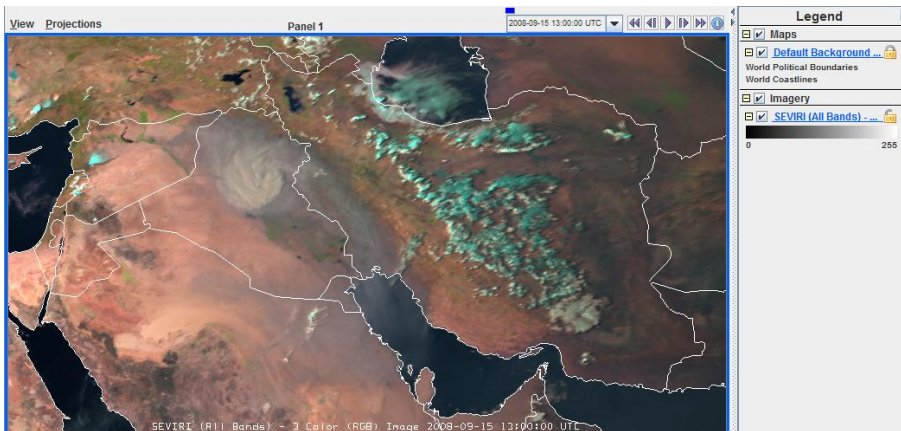
This is an afternoon image from 15 March 2008. Question: Which features do you recognize? Can you outline the dust cloud? Where is the thickest dust?

➢   Now, open the Dust RGB image (for the same area), it should look like this:

The IR-based Dust RGB complements the information from the VIS-based Natural Colour RGB. Question: does it help to better outline the dust cloud? Can you see moisture boundaries in this Dust RGB image?

3.   Analyse the thin dust cloud over the Gulf

➢   If you zoom on the northern Gulf area (see below), you can see that the colour of the dust cloud is magenta over land, but more bluish over the sea. Let us try to find out why?
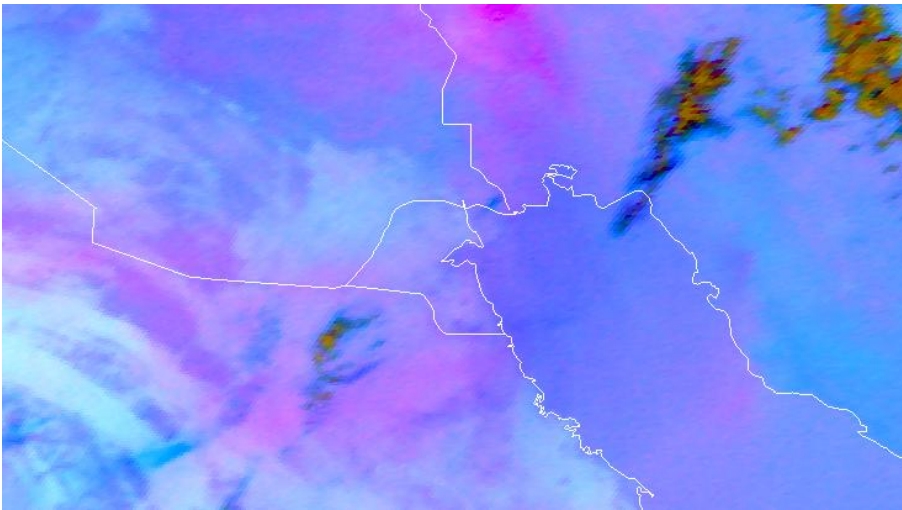
- ➢ First, create the IR12.0 – IR10.8 difference image
- ➢ Go to the Data Explorer window
- ➢ In the Field Selector window select data source: **<Formulas>**
- ➢ As field select **<Miscellaneous>, <Simple difference a-b>**
- ➢ As Display select **<Image Display>**
- ➢ Click **<Create Display>**
- ➢ A new window pops up
- ➢ for Field a select SEVIRI, 12.0 um IR, Temperature, wait
- ➢ for Field b select SEVIRI, 10.8 um IR, Temperature, wait
- ➢ In the **<Advanced>** tag make sure that **<Magnification>** is set to maximum (1) (you may have to resize the window to see these tags!!!)
- ➢ In the **<Region>** tag make sure that the same region as before is selected
- ➢ Click <OK>
- ➢ The Difference IR12.0 – IR10.8 (the red component of the Dust RGB) is now displayed with a coloured colour table (see below)
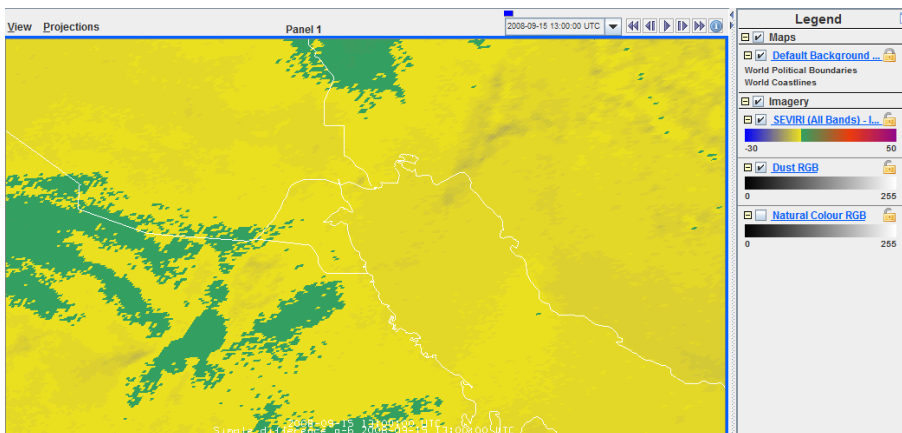

- ➢ We want to change the range and select a black/white colour table
- ➢ Right click on the colour bar of this layer and select **<Edit Colour Table>**
- ➢ From the "Colour Tables" drop down menu, select **<System>, <Grey Scale>**
- ➢ Change the range to [-2, +1]
- ➢ Click **<Apply>**

- ➢ If the result is ok, click **<OK>**
- ➢ It is useful to change the label of displayed image
- ➢ Left click on the text of this layer to display the Layer Controls
- ➢ Click on the Info button (see below)

Click here to show display panel properties

- ➢ Change the **<Legend Label>** to "IR120 – IR108"
- ➢ Click **<OK>**
- ➢ Now, the difference image should look like shown below
- ➢ Read the values of this difference (keep pressed middle mouse button)
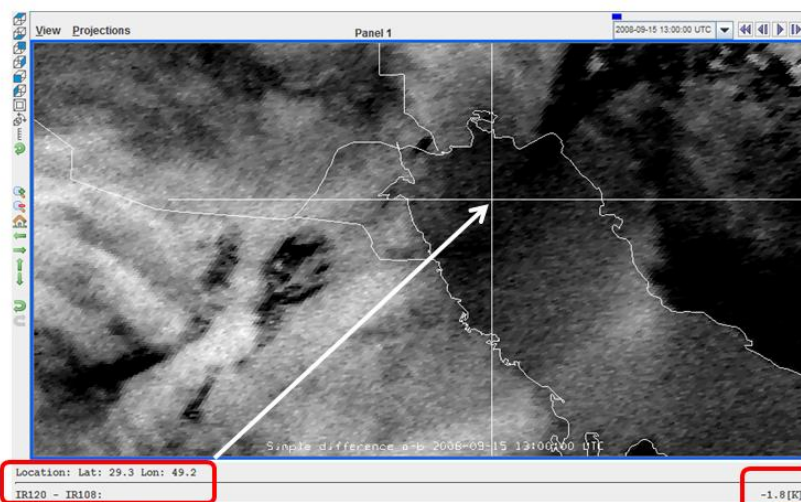
Location of cursor   Read the values here

As we have learned, this IR12.0 – IR10.8 difference for thin dust clouds should be positive. So, why is it negative over the sea background in this case? To help you, you may display the IR10.8 image and enhance it by narrowing the range to 285 to 310 K. Which IR10.8 Brightness Temperatures do you observe? over land? over sea? Is this a high- or low level dust cloud?