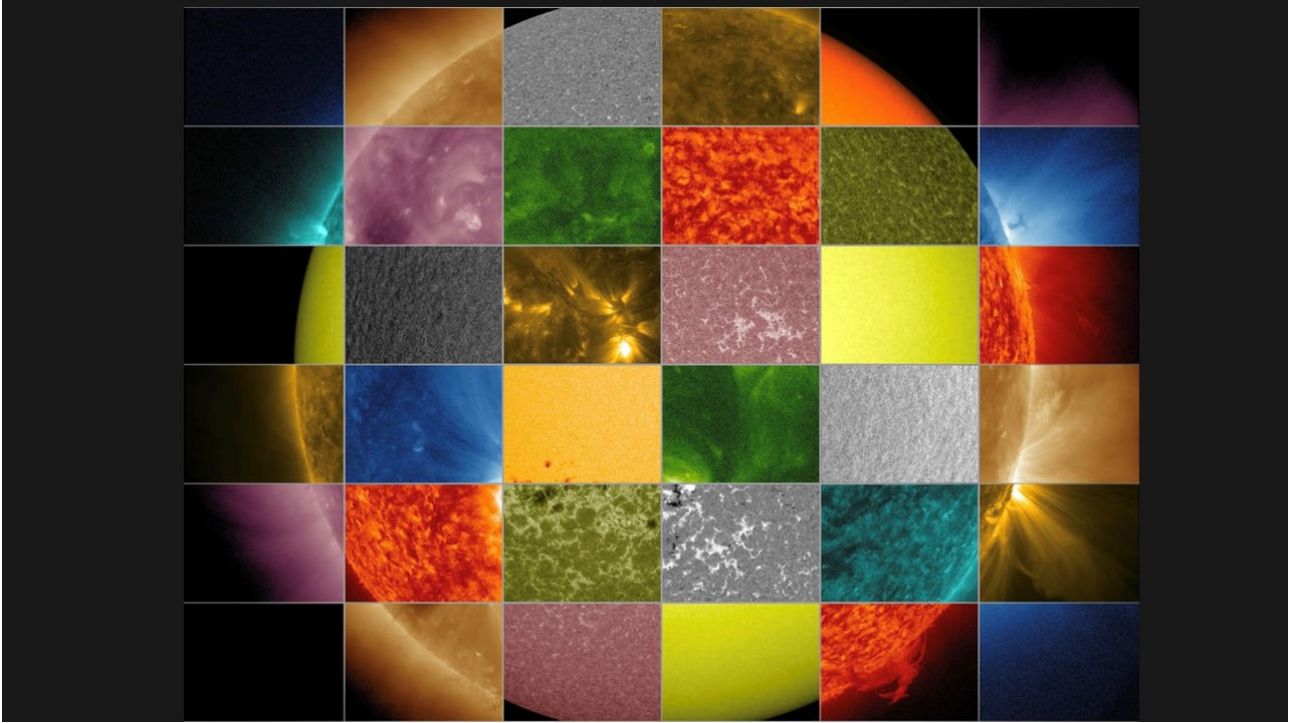


Worksheet: The Spectral Output of Stars



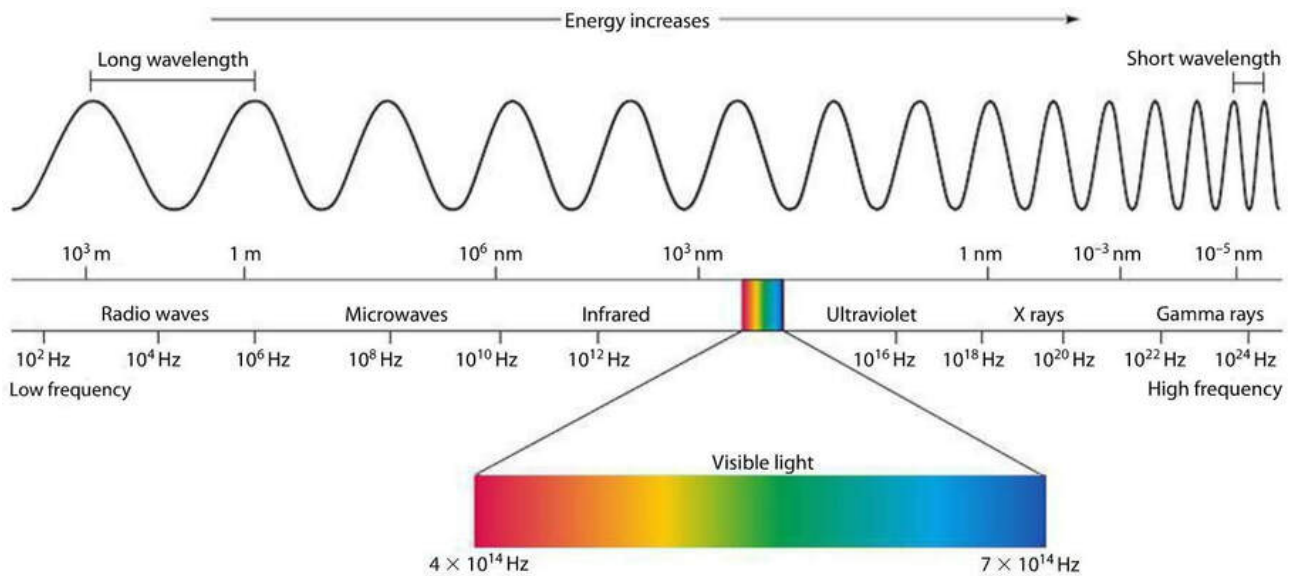
Aim:

- ***Collect Data***
- ***Process Data***
- ***Create an Output***

EM SPECTRUM

Fusion in Stars means that they produce EM radiation right across the EM spectrum - from very long Radio Waves to very short Gamma Rays

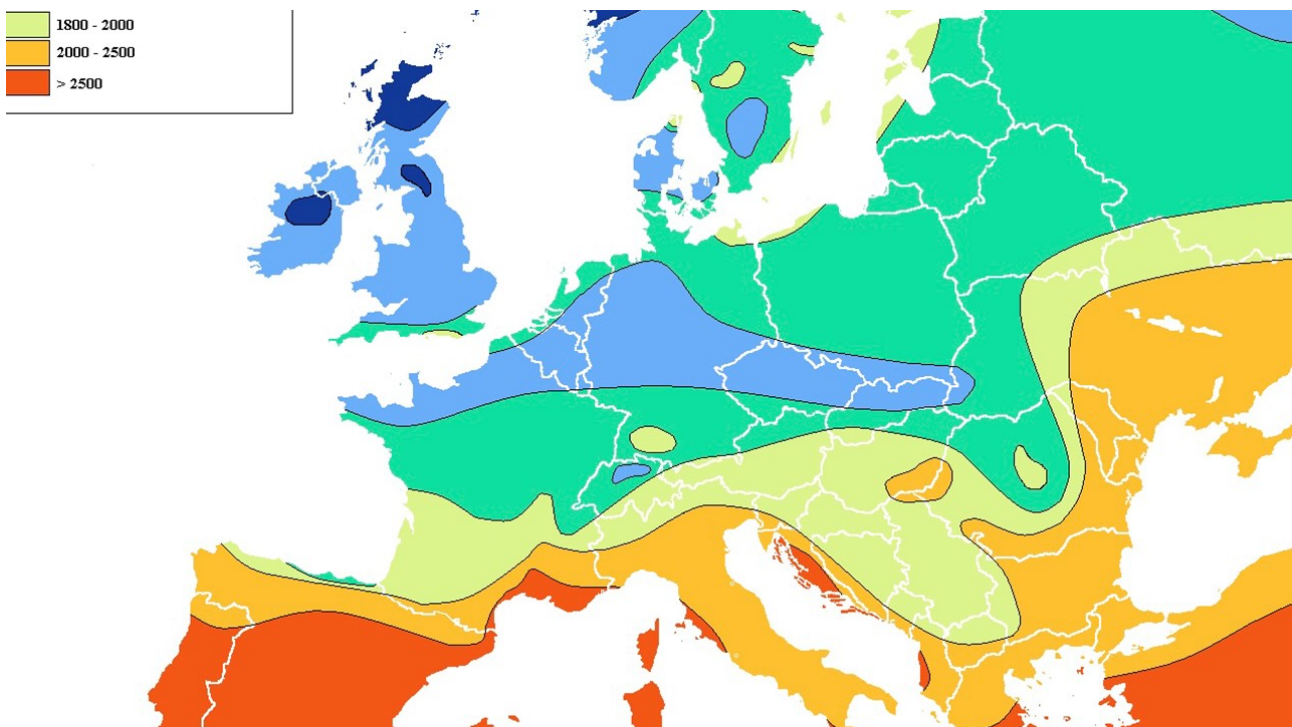
We can only see the “visible spectrum” but we have sensors that allow telescopes to capture other parts of the spectrum - eg Radio Telescopes or IR Telescopes



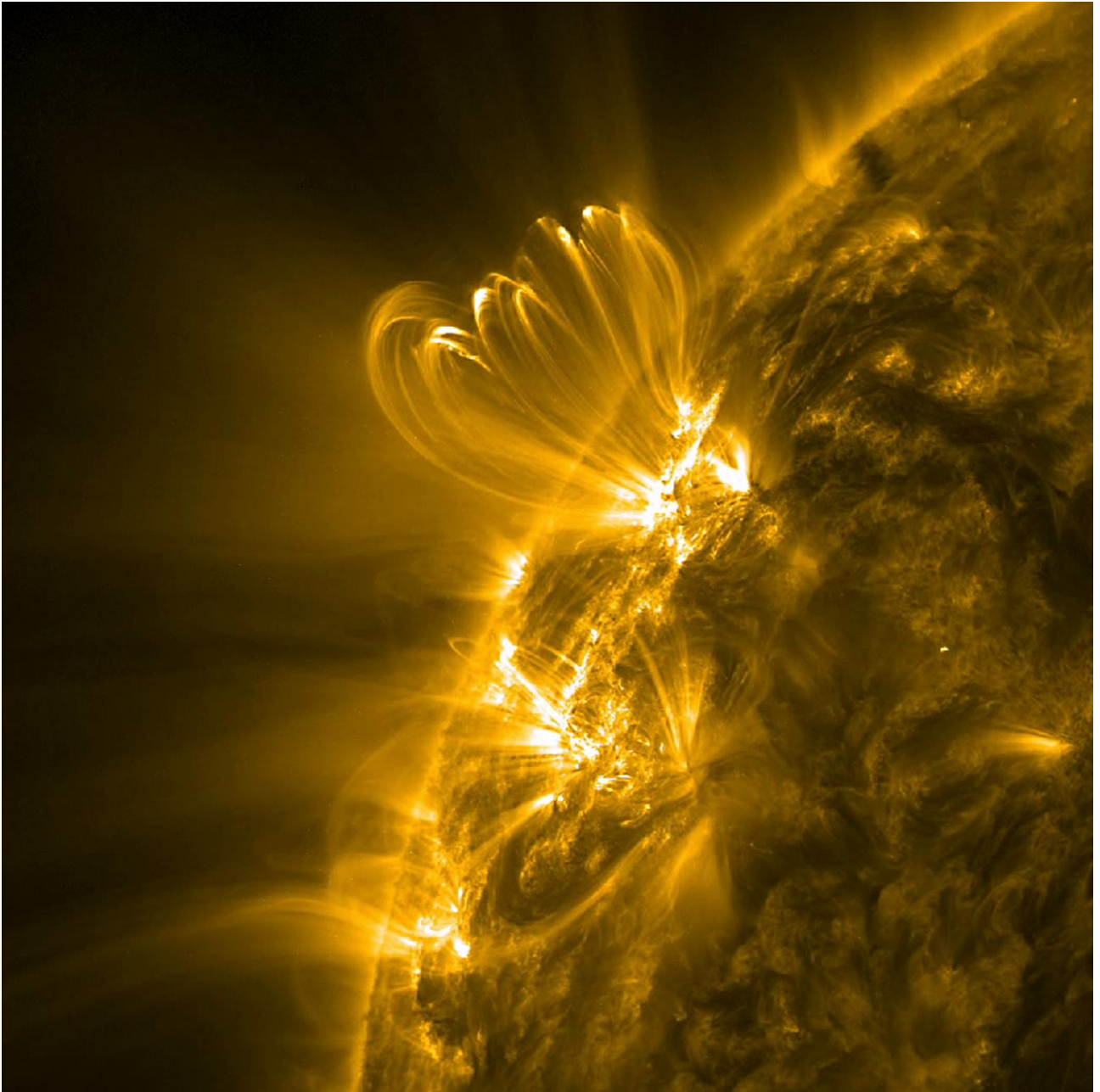
FALSE COLOUR

The Human Eye can only detect the Visible spectrum - but we can present other frequencies by using 'false colour'.

Europe doesn't actually look like this - but we can 'read off' the data presented by the colour (in this case, hours of sunshine per annum)

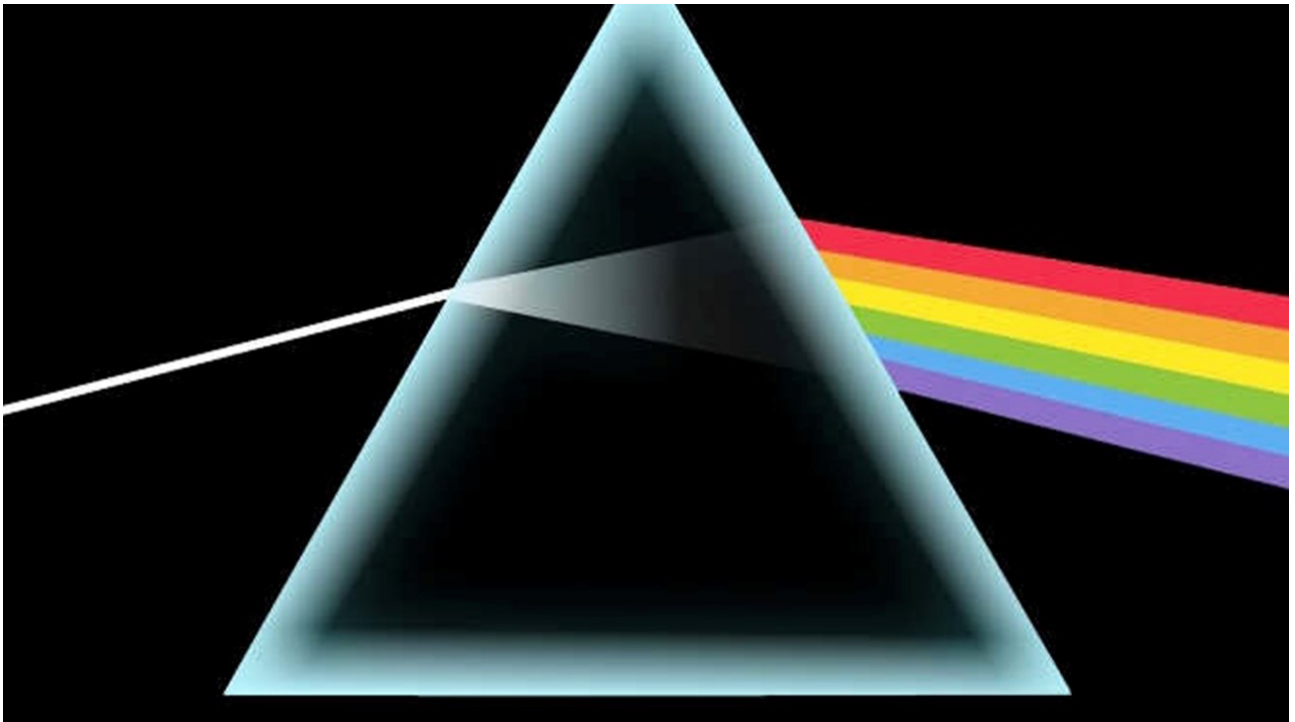


Here's an UltraViolet image of our Sun, presented in false colour



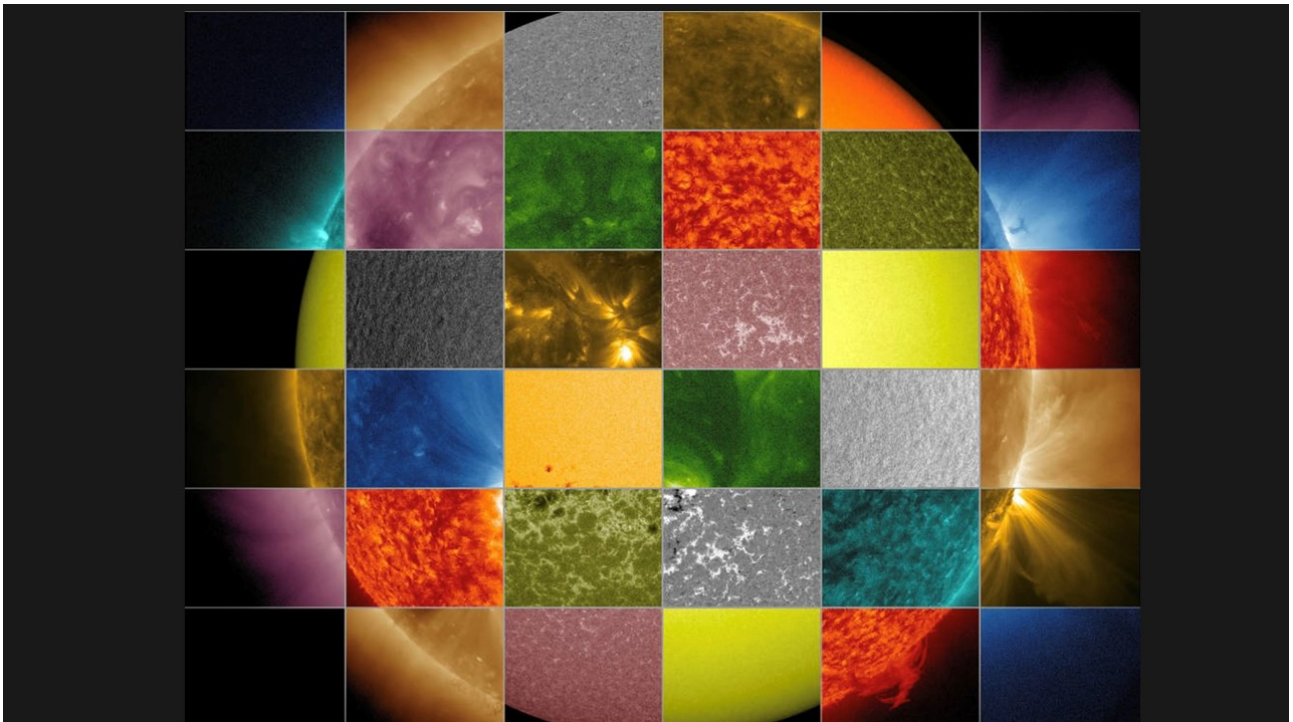
So, if we took all the spectral output from an astronomical object we could split it into individual pathways and then colour those to suit our needs.

So this diagram could represent ROYGBIV - but it could equally represent Radio - Micro - IR - Visible - UV - X - Gamma



If we can capture, separate and then use false colour to present the output of stars, we should be able to present some quite impressive and informative images.

For example, this rather splendid picture is a patchwork image of our Sun, presenting the full spectral output from Radio to Gamma



In this case, we might capture, separate and present the spectral output of the Tarantula Nebula.

All Images Shopping Videos News Maps Bo

Tarantula Nebula

Coordinates



RA 5h 38m 38s | Dec -69° 5' 42"

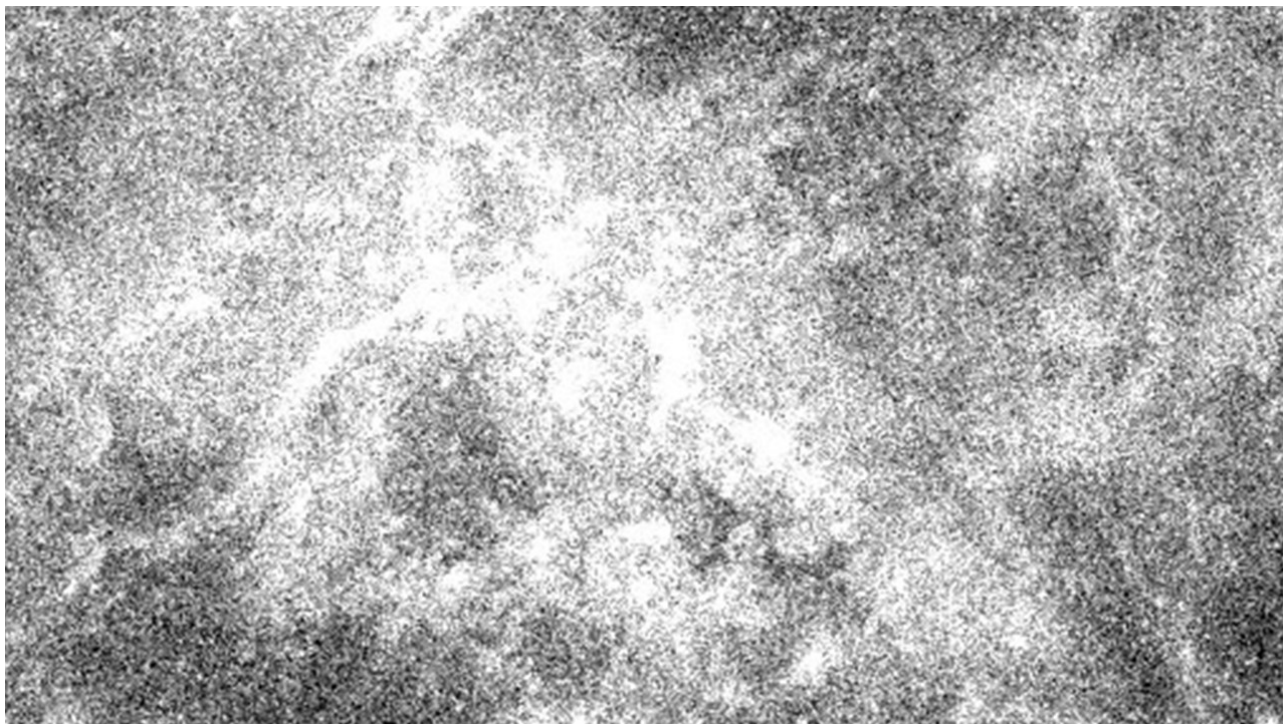
To capture the data we require, we request images from a remote telescope pointing to those co-ordinates

You can read more about Remote Telescopes here:

<https://www.skyatnightmagazine.com/advice/skills/how-use-remote-telescope-astrophotography/>



We can ask for images filtered for specific parts of the EM Spectrum



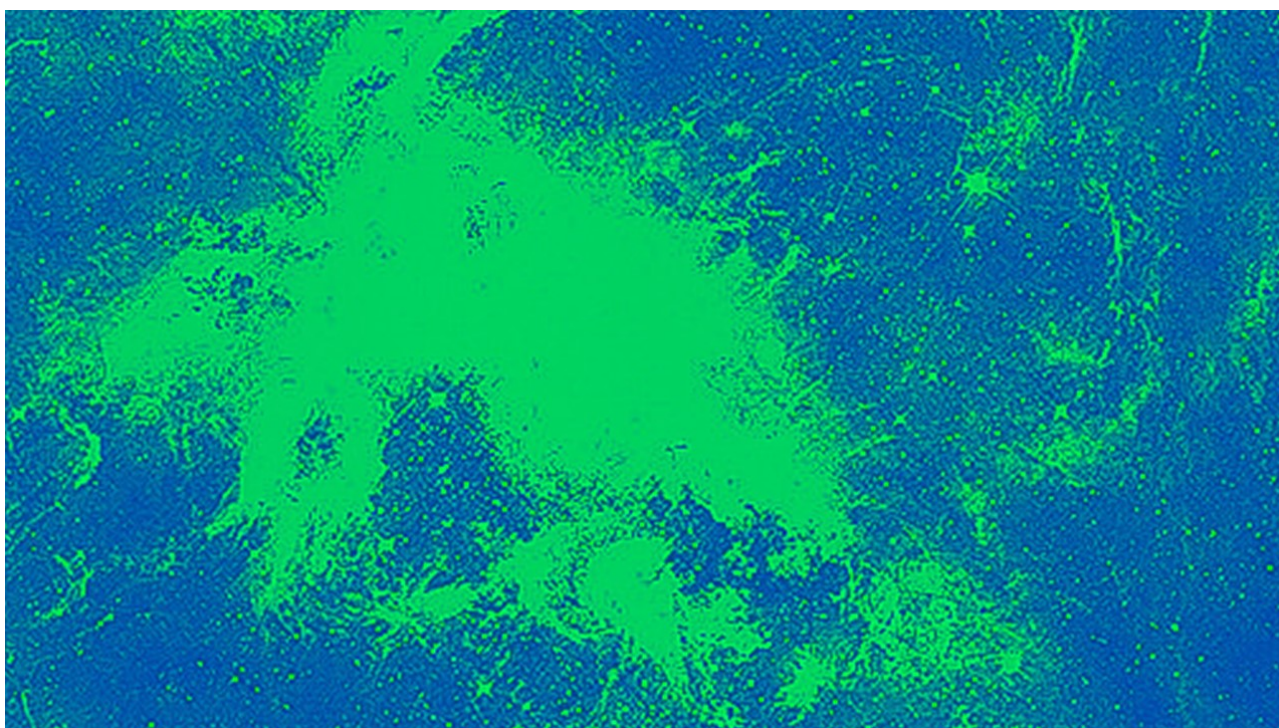
And use an image processing package (eg PhotoShop) to improve the contrast.



We can then false colour the image



Repeat for other elements of the Spectrum, with different colours of our choice



And then combine the images to produce something beautiful, spectacular, inspirational and informative:



“There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy”

- Shakespeare, Hamlet, Act 1

