

True Colour RGB

Colour beam	Channel		Range			piecewise linear stretching
Red	M5	VIS0.67	0	110	%	
Green	M4	VIS0.55	0	110	%	
Blue	M3	VIS0.49	0	110	%	

The True Colour RGB is composed of the VIS0.67, VIS0.55 and VIS0.49 bands.

To obtain good quality True Colour RGB images, one has to remove the Rayleigh scattering effects from the components, and perform non-linear stretching, otherwise the image would be blurred; and the surface features would be too dark.

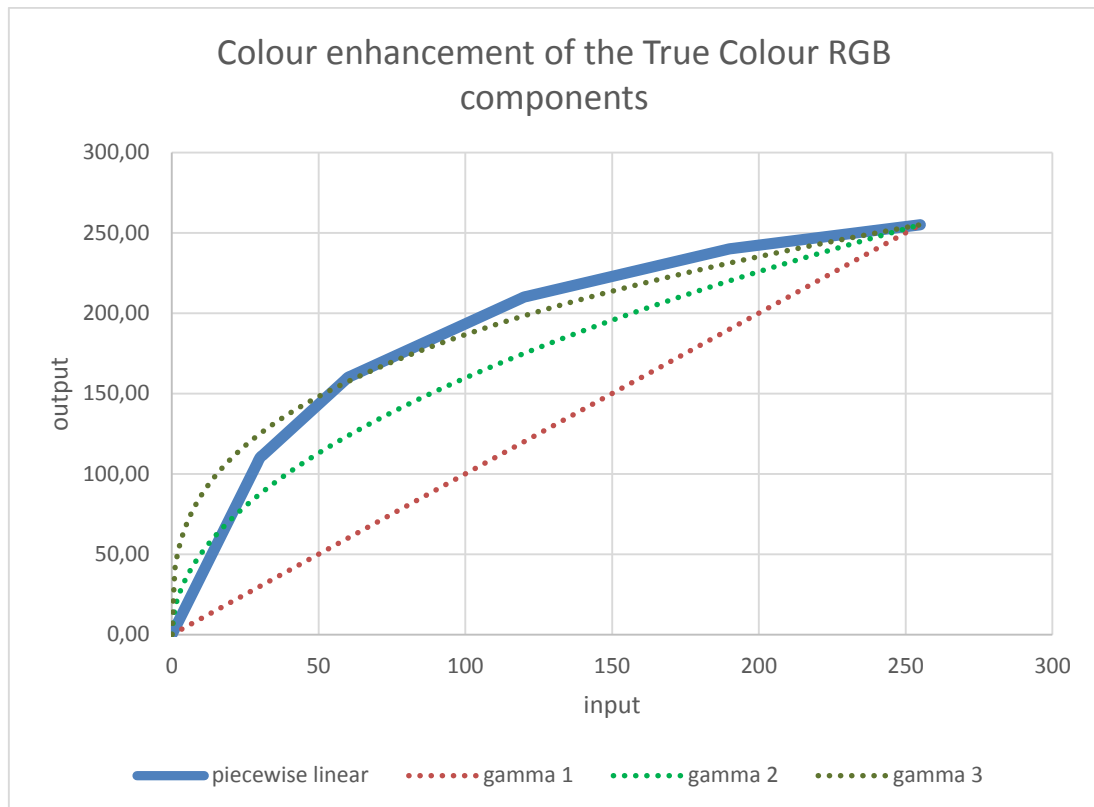
The Rayleigh scattering effect can be removed for example by the Polar2grid or Pytroll program packages. The enhancement could be done, for example in the same way, as it is suggested for MODIS images (https://cdn.earthdata.nasa.gov/conduit/upload/946/MODIS_True_Color.pdf).

- First a linear stretch is performed within the above indicated reflectivity ranges.
- Then a piecewise linear stretching is performed for all three components, according to the table below.

Input Brightness	Output Brightness
0	0
30	110
60	160
120	210
190	240
255	255

Non-linear Brightness Enhancement Table

The figure below shows the piecewise linear enhancement applied for the components. For comparison the gamma correction curves (with gamma equal to 1, 2 and 3) are also shown to demonstrate that these methods provide (similar, but) different non-linear stretching.



Piecewise linear enhancement compared to gamma correction curves (Gamma 1, 2 and 3)

Remarks:

- It will become a standard RGB for the future FCI. (VIS0.55 and the VIS0.49 are the channels which are not available in SEVIRI but FCI will measure within it.)
- The main aims are aerosol monitoring and providing true colour images.