

Using McIDAS-V to process data of EUMETSAT satellites for training and reach-out

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2010 McIDAS Users' Group Meeting Madison Wisc., 25-28 October 2010

Plug-in for many MSG/SEVIRI RGB schemes

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# Du	st	
# un	its: K	
#R:	10-09	-4K2K
#G:	09-07	0K15K gamma=2.5
#B:	09	261K289K

def DUST_RGB(ch07,ch09,ch10): img1 = 255*max_data(min_data((ch10-ch09+4)/6,1),0) img2 = 255*max_data(min_data((ch09-ch07)/15,1),0)**(1/2.5) img3 = 255*max_data(min_data((ch10-261)/28,1),0) return combineRGB(img1,img2,img3)



Dust RGB showing Saharan dust transport



Remark:

dust in pink

- Only image sequences produced by McIDAS-V movies always done with freeware tools
- Cannot be done conveniently in McIDAS-V map bundle inherits width/height from current display window (and not from bundle) → IDV



Dust RGB applied to MODIS channels

Dust-RGB comparison SEVIRI-MODIS (both using SEVIRI tuning) 24 June 2010



SEVIRI 07:45UTC



SEVIRI 09:30UTC



MODIS 07:45UTC



MODIS 09:30UTC

dust in pink



Mining many features – semi-transparent splitwindow difference over Airmass RGB

Input through

- local ADDE server (LOCAL-DATA):
 MSG HRIT FD
 MSG HRIT HRV
- remote ADDE servers

Airmass RGB

- 3D-cloud map
- Bluish hues map polar air
- · Greenish hues map sub/tropical air
- Reddish hues map dry upper troposphere (stratospheric intrusions, PV maxima)

Split-window difference

• Ash from Eyjafjalla eruption as tracer of a deformation zone





Match-up of volcanic ash & SO₂ RGB and Metop-A instruments



GOME-2

 Input of SO₂ maps in equirectangular lation projection ("World")





IASI

- Input and display with HYDRA functionalities
- B/W image of a channel difference sensitive to SO₂

SO2 in greenish hues on RGBs

Sensitivity comparison AVHRR/MODIS

Input through local ADDE servers (LOCAL-DATA): •Metop AVHRR 1b •MODIS MOD 02 ...

bp Oil Spill, Gulf of Mexico comparison: 29 April – 1st May 2010 / AVHRR – MODIS





Exotic event – SEVIRI documents asteroid impact







- Initial flash and debris cloud after sunrise in red
- Debris cloud before sunrise in black to cyan



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NWP fields and cold cloud tops – Hajj storm



no particular forcing middle/upper troposphere

low-level jet over Red Sea



Image averaging – detecting persistent cloud



HRV average 2007: 0609-0915 @ 0745UTC

- 100-day average of local-noon images reveals a persistent low cloud deck along the southern coast of the Arabian Peninsula during the monsoon season over the Arabian Sea
- Phenomenon is known as the welcome Al Khareef season in the seaport of Salalah
- ... and land turns green





Temperature maximum – simple de-clouding



after 3 night over the Amazonas basin



after 6 night over Africa

Extracting the maximum temperature from nightly IR time series de-clouds the scene revealing land features like water bodies or temporarily flooded areas





EUMETSAT

Monitoring weather and climate from space

THANK YOU





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