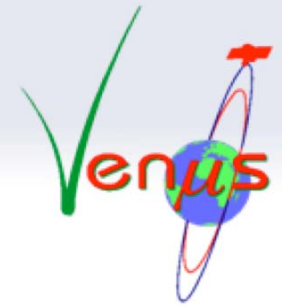


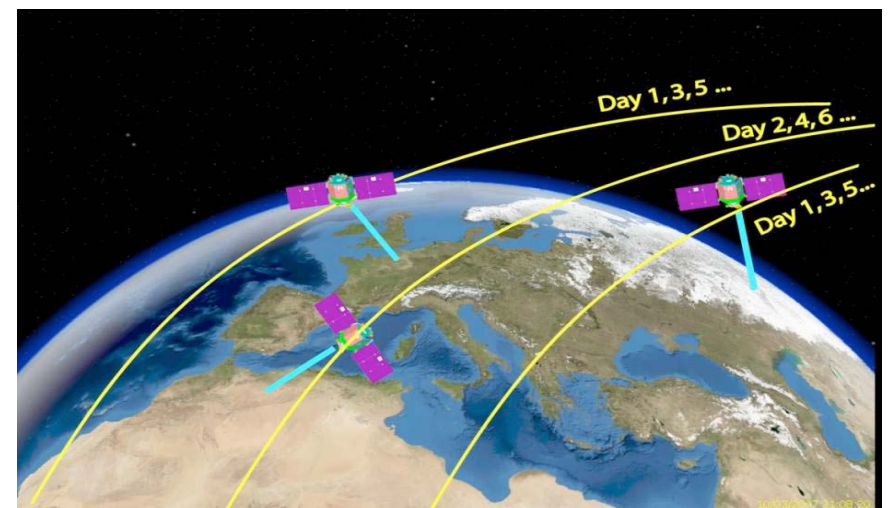
Venus and Formosat-2  
high resolution time series  
available for validation  
of medium resolution products

O.Hagolle, G.Dedieu

# Venus scientific mission



- ❑ Mission in cooperation between France and Israel
- ❑ Launch ~2011, scientific demonstrator (2.5 years)
- ❑ Venus image characteristics
  - ❑ **Resolution 5m-10m**,
  - ❑ Field of View 27 km
  - ❑ 12 spectral bands from 412 to 910 nm
  - ❑ Systematic acquisition of **50 sites every second day**
  - ❑ 2 stereoscopic bands with a low angle difference
  - ❑ **Constant viewing angle** ==> **Directional effects are minimised**



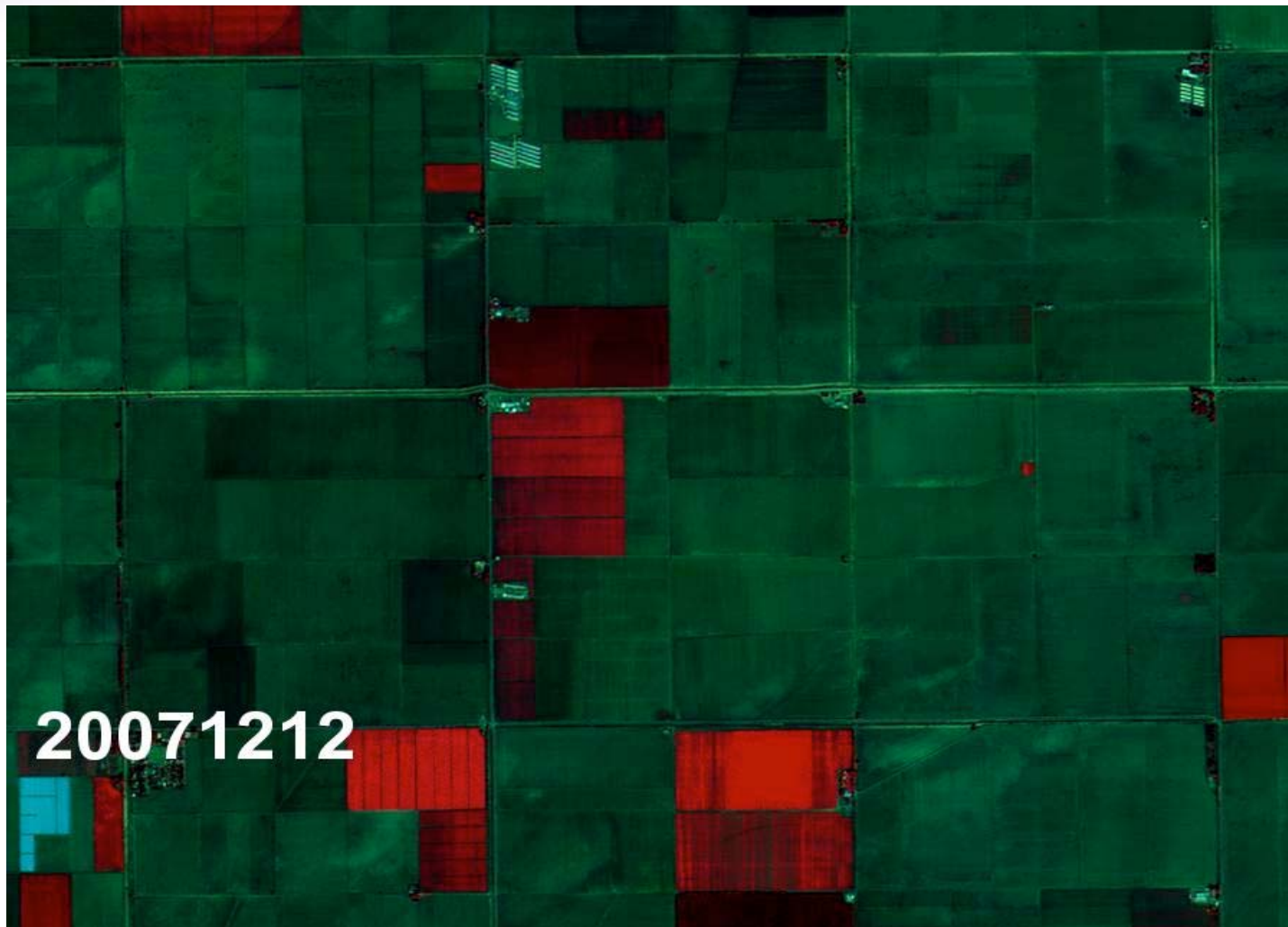
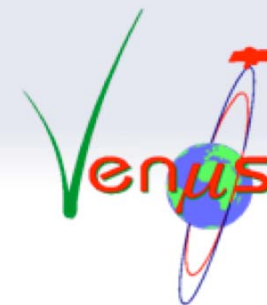
## Venus – Formosat 2

- ❑ Venus image characteristics
  - ❑ Resolution 5m-10m, Field of View 27 km
  - ❑ 2 day repeat cycle
  - ❑ 12 Spectral bands from 412 to 910 nm
  - ❑ Systematic acquisition of 50 sites every second day
  - ❑ **Constant viewing angle**
  
- ❑ Formosat-2 images : NSPO (Taiwan) satellite
  - ❑ Resolution 8m, Field of View 24 km
  - ❑ 1 day repeat cycle
  - ❑ 4 Spectral bands : 488, 555, 650, 830 nm
  - ❑ **Constant viewing angle**
  - ❑ 1000 € / image
  - ❑ Launched in 2004





# Formosat-2 time series Yaqui, Mexico

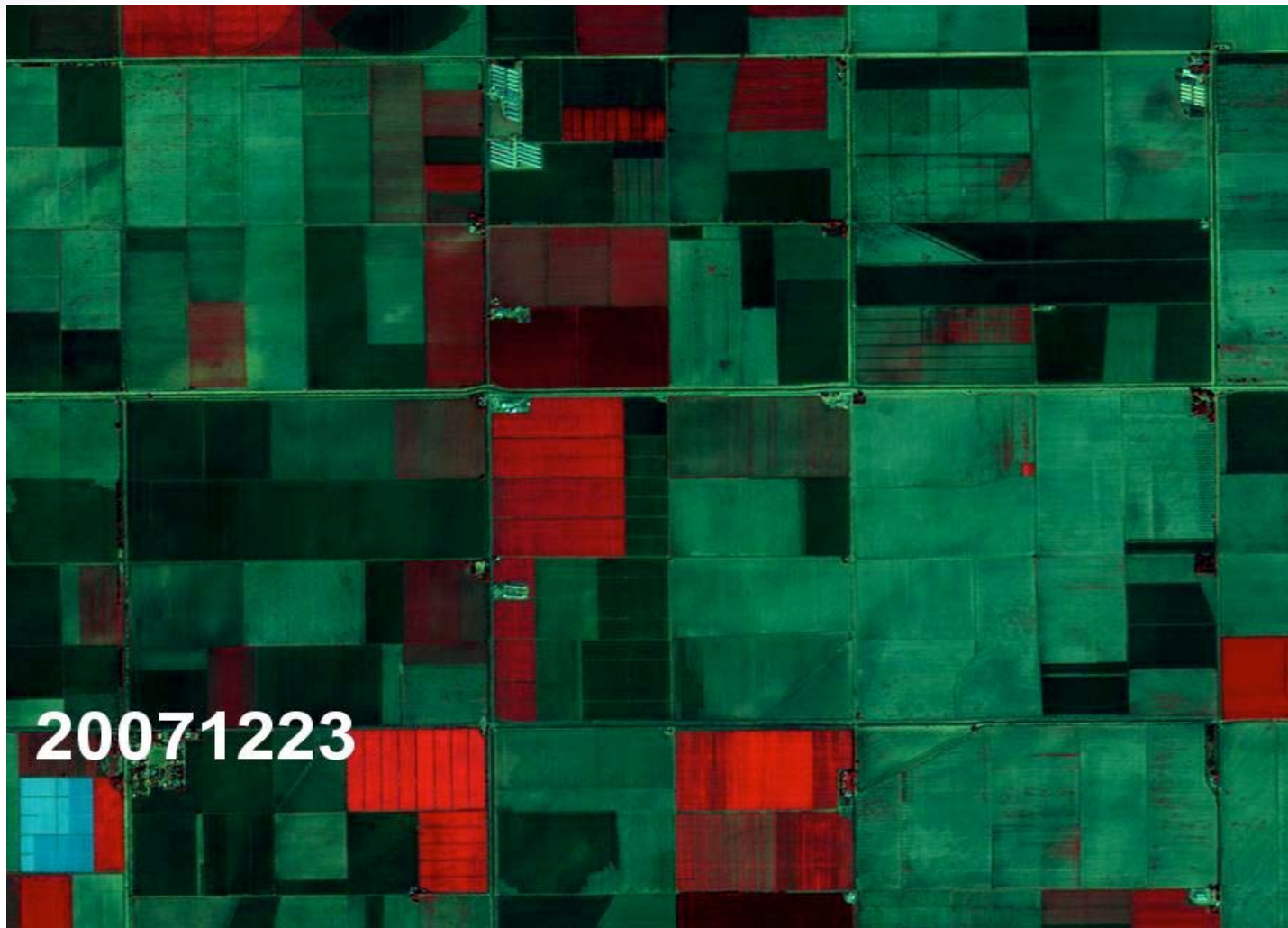
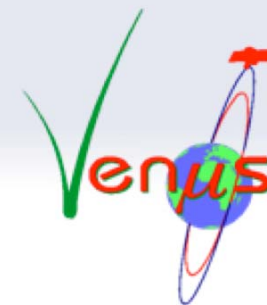


20071212





# Formosat-2 time series Yaqui, Mexico

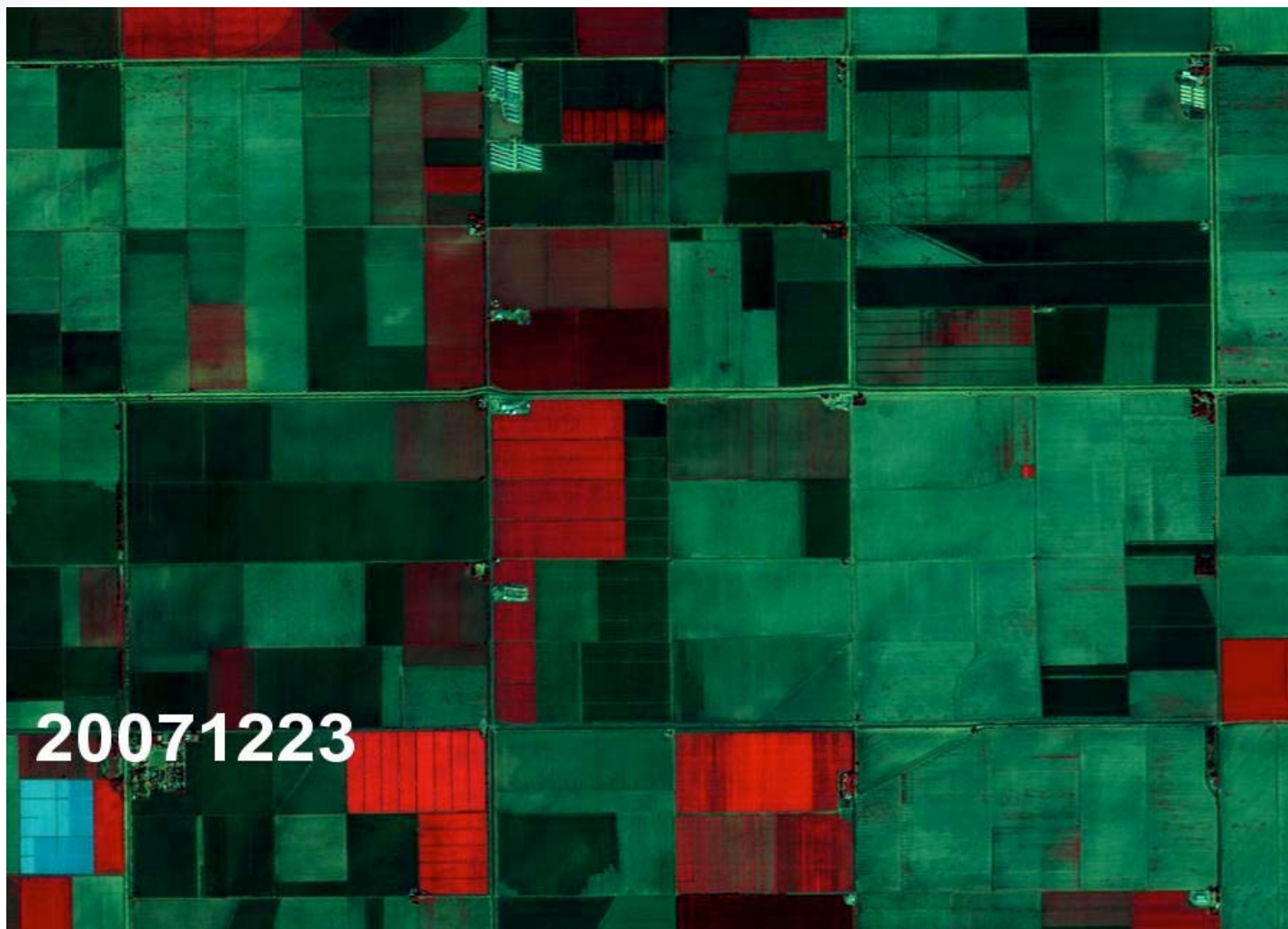
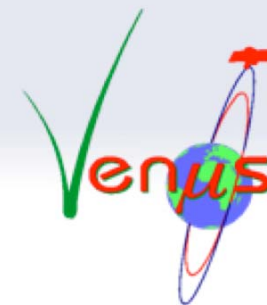


20071223





# Formosat-2 time series Yaqui, Mexico

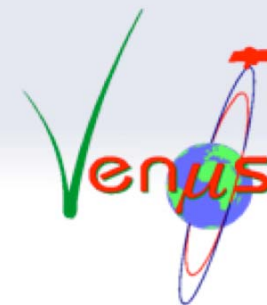


20071223





# Formosat-2 time series Yaqui, Mexico

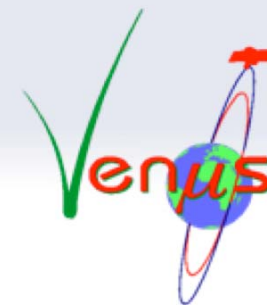


20080103





# Formosat-2 time series Yaqui, Mexico



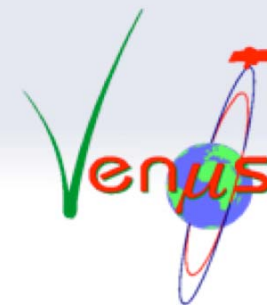
20080108







# Formosat-2 time series Yaqui, Mexico

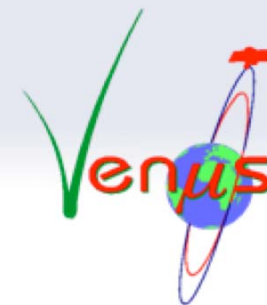


20080113





# Formosat-2 time series Yaqui, Mexico

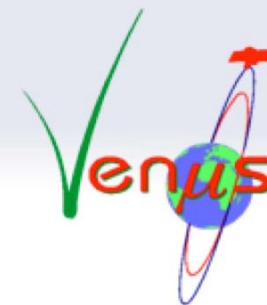


20080113





# Formosat-2 time series Yaqui, Mexico

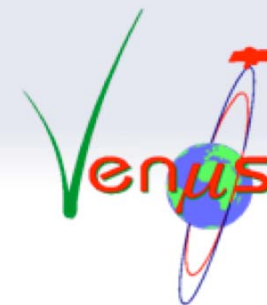


20080118





# Formosat-2 time series Yaqui, Mexico

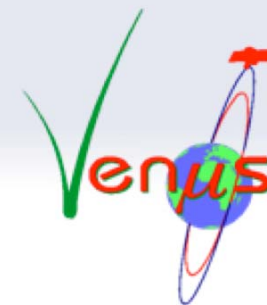


20080129





# Formosat-2 time series Yaqui, Mexico

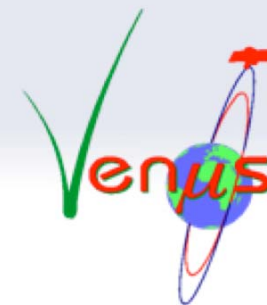


20080204





# Formosat-2 time series Yaqui, Mexico



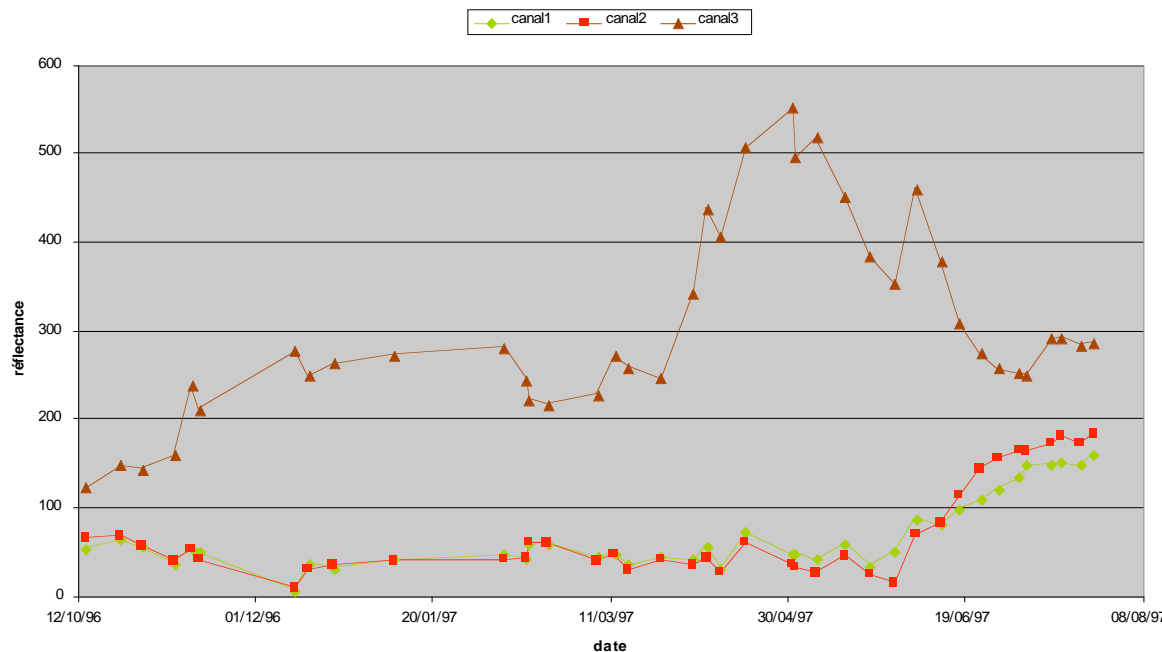
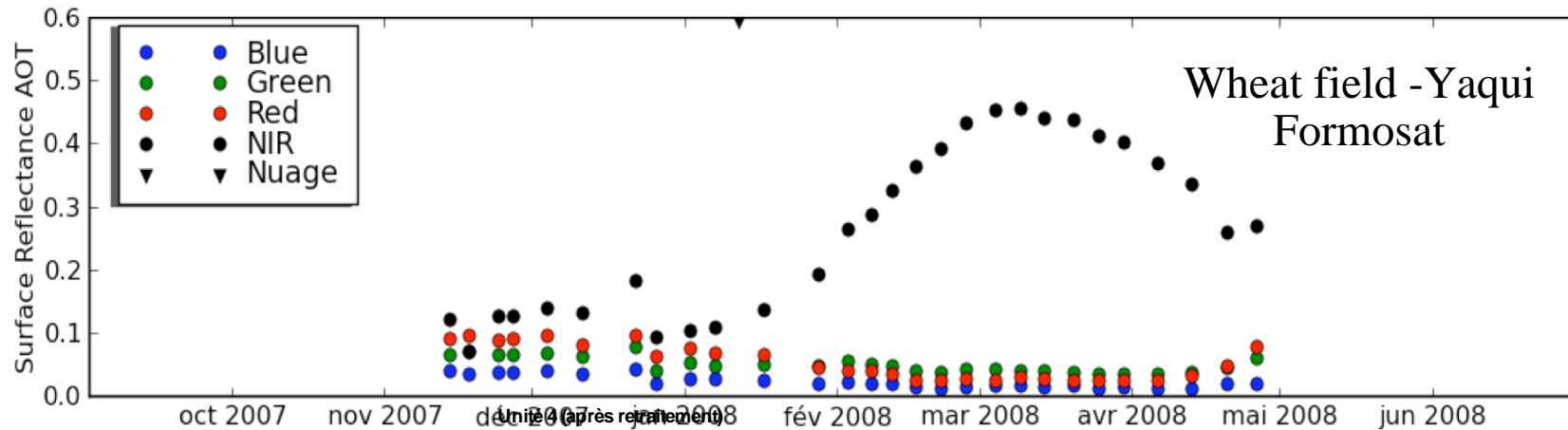
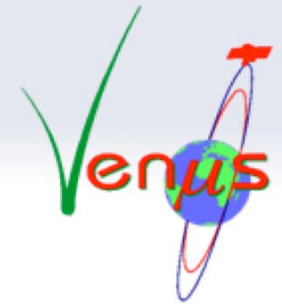
20080209





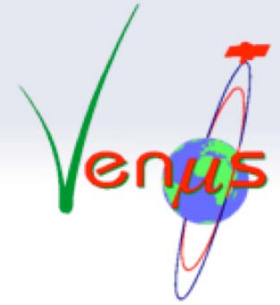
20080213

# Surface reflectance time series





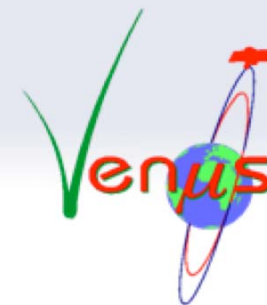
## Data availability



- ❑ More than 10 Formosat2 time series are available
- ❑ Data are available for free for future Venus Users
  - ❑ LPV is already member the Venus User list (S. Garrigues PI of the EOS sites NASA proposal for Venus acquisitions)
- ❑ Interested ?
  - ❑ Please contact : [olivier.hagolle@cnes.fr](mailto:olivier.hagolle@cnes.fr)
  - ❑ Or [gerard.dedieu@cesbio.cnes.fr](mailto:gerard.dedieu@cesbio.cnes.fr)



# Transparents supplémentaires

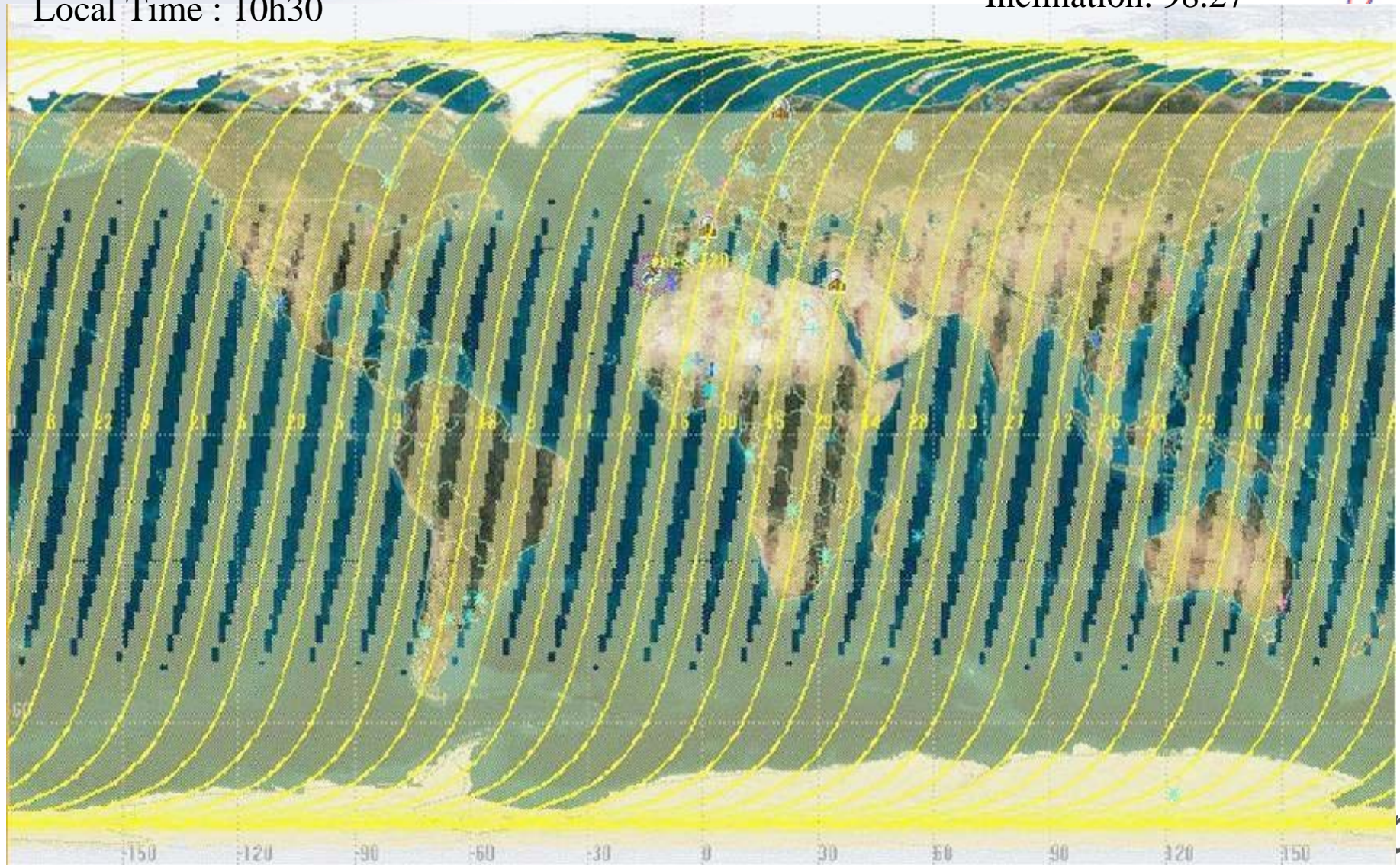
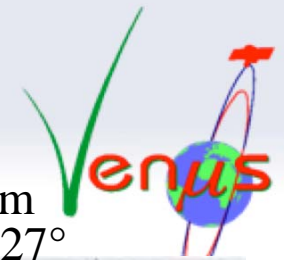




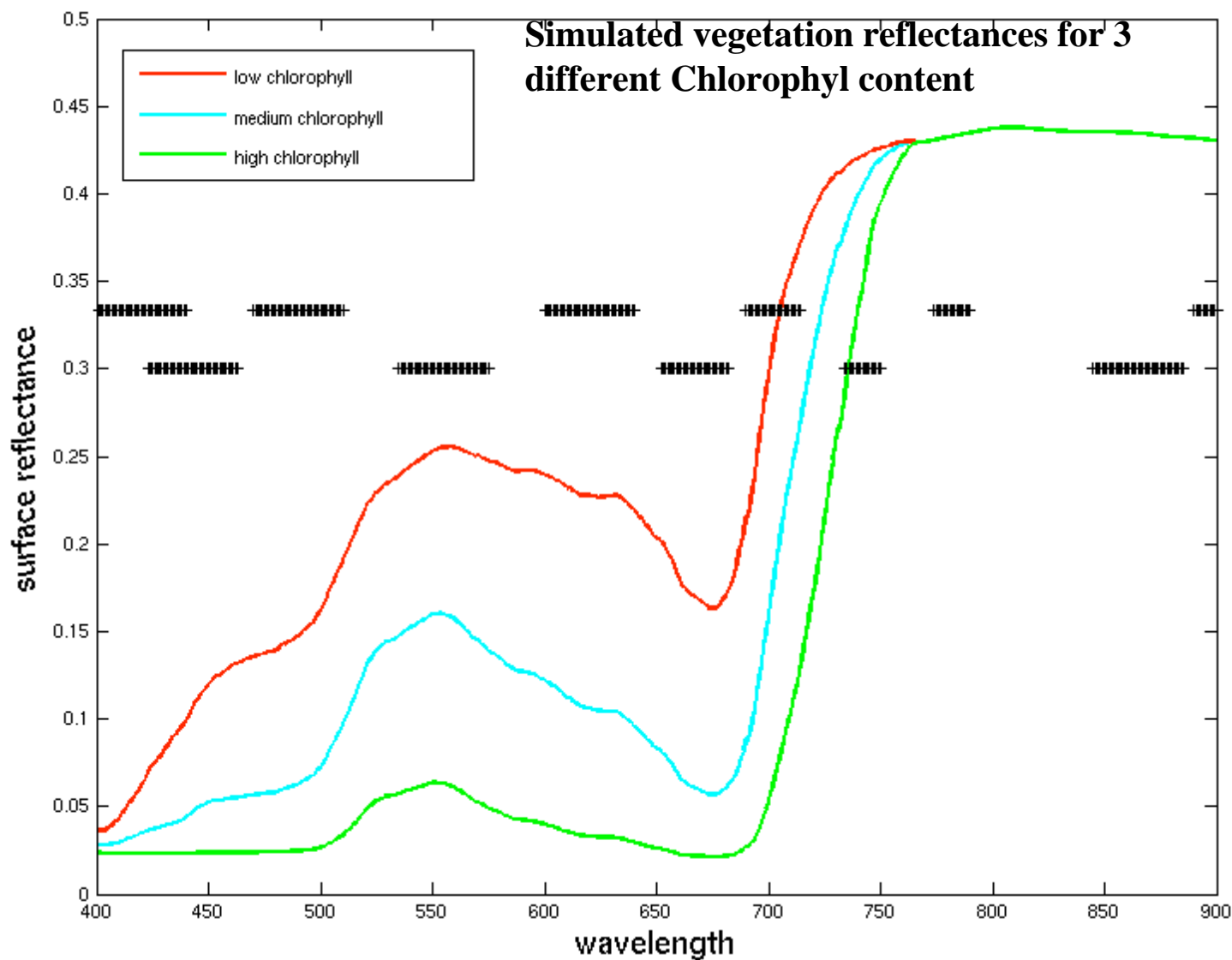
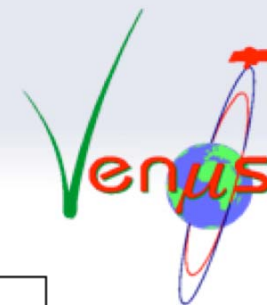
# Accessibility

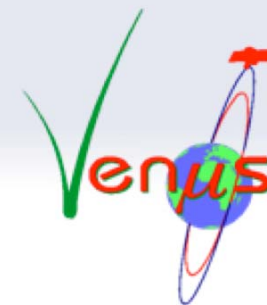
Sun-synchronous  
Local Time : 10h30

Altitude: 720 km  
Inclination: 98.27°

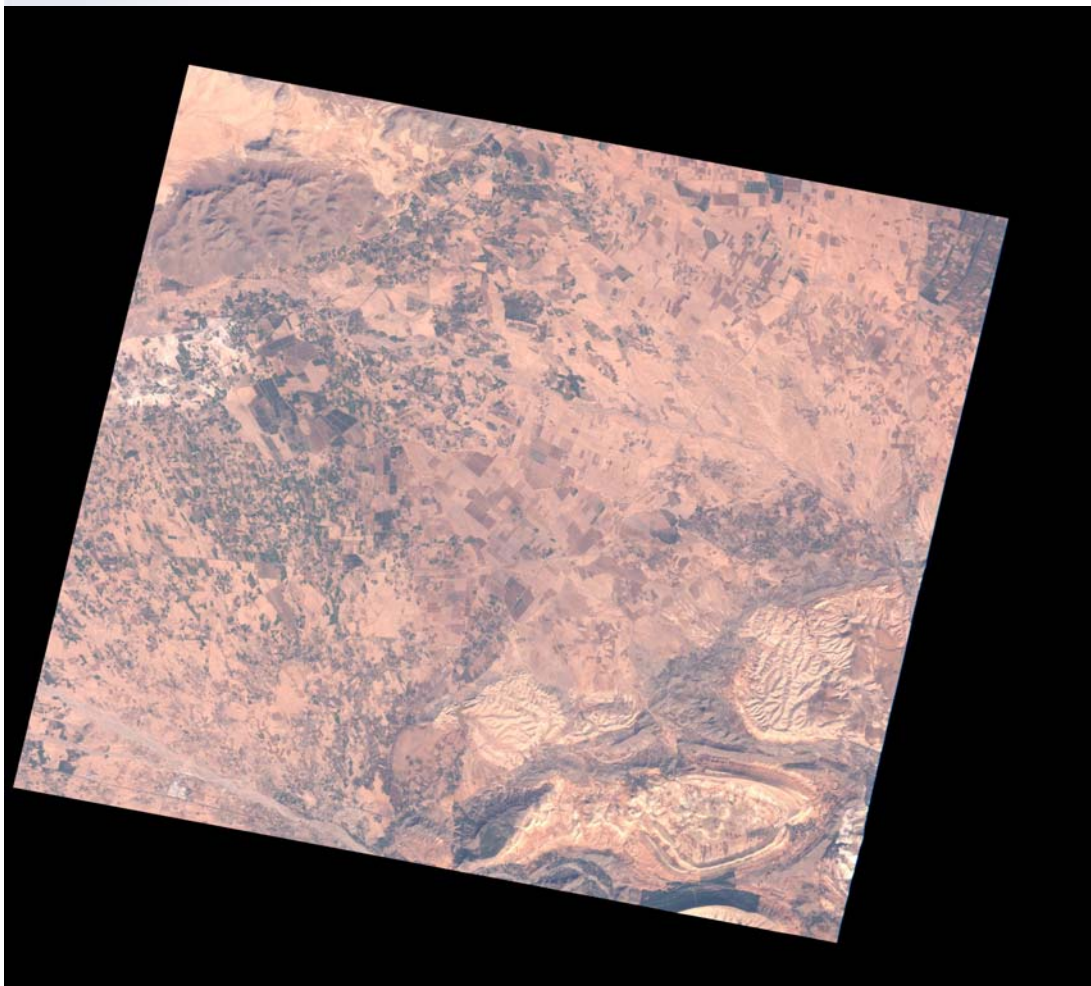


# Spectral bands



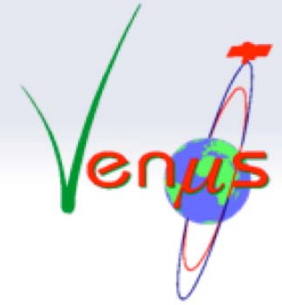


- CESBIO/IRD site

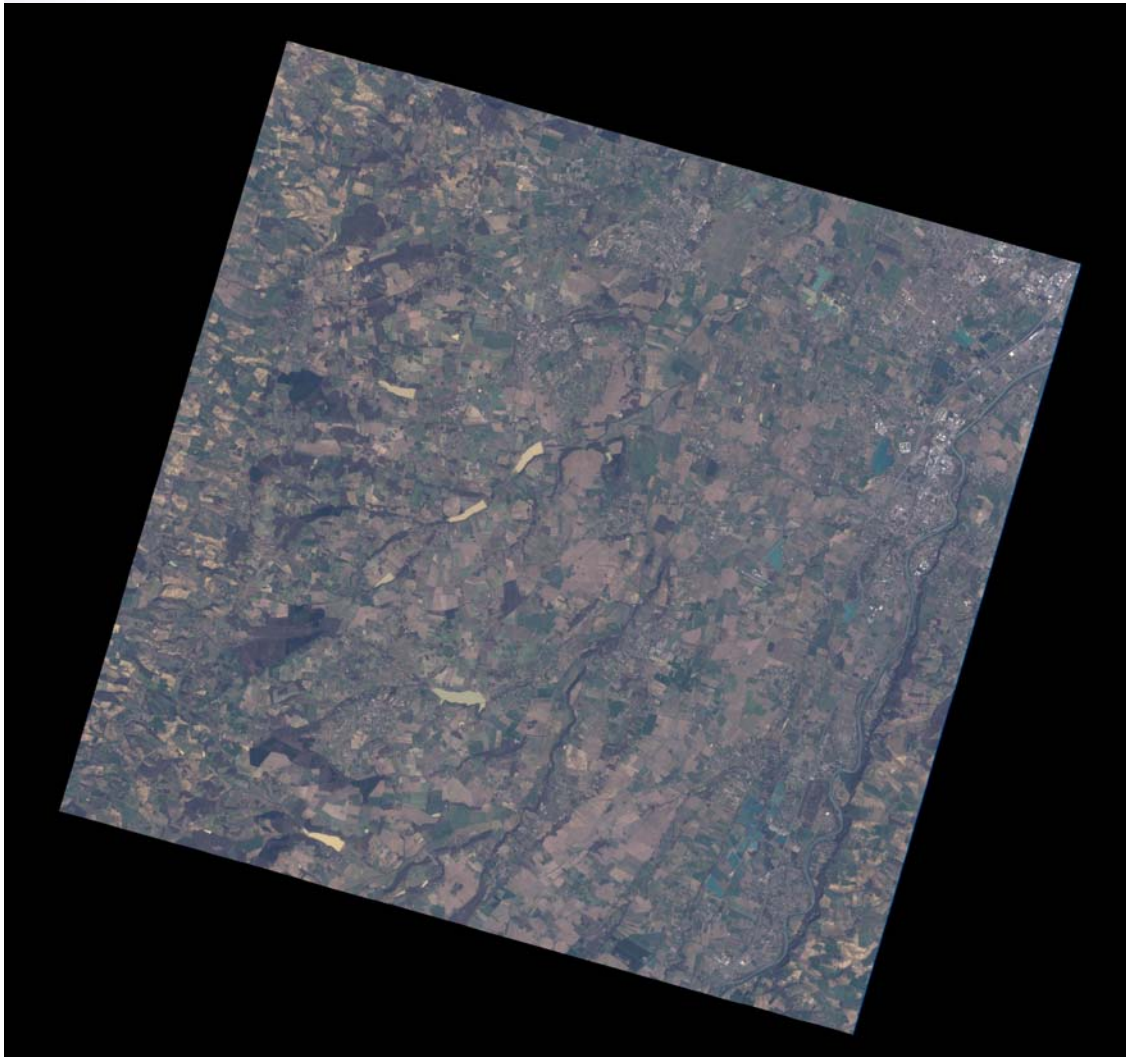


11/2005 à 11/2006 :

- Sunphotometer
- One gap in spring

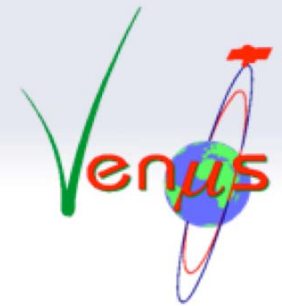


- ❑ CESBIO site Near Toulouse



03/2005 à 12/2007 :

- ❑ Sunphotometer
- ❑ Many data gaps



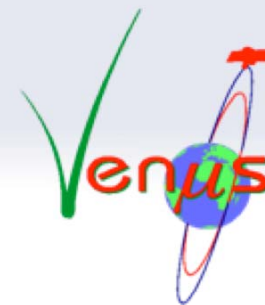
- ❑ Calibration site

02/2006 à 10/2006 :

- ❑ Sunphotometer
- ❑ Many data gaps
- ❑ VZA 41°



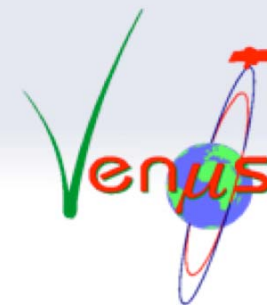
# Cestas, France



- ❑ From 24/05/2005 to 21/07/2005 :
  - ❑ 21 images
  - ❑ No sunphotometer



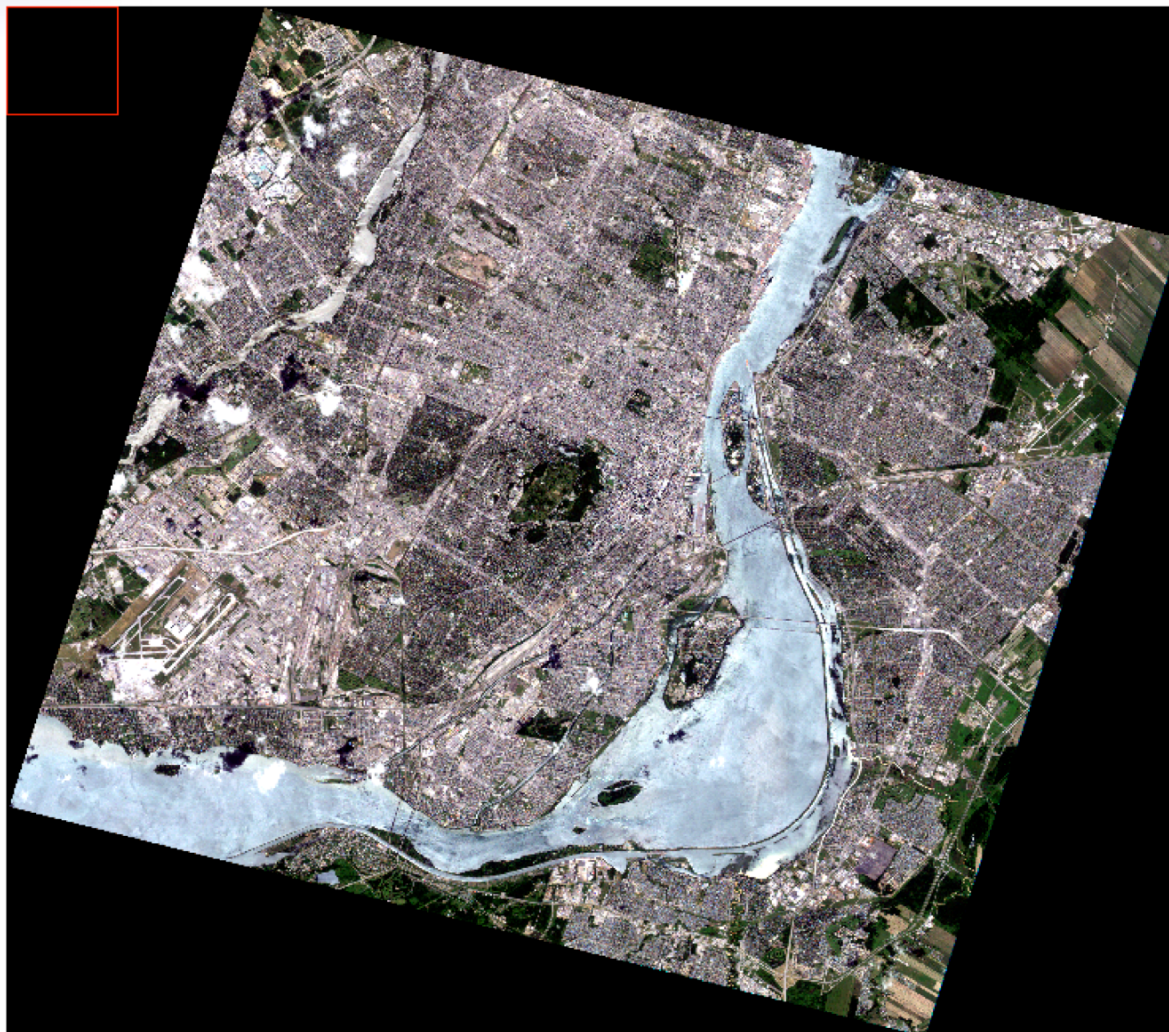
# Montréal, Canada

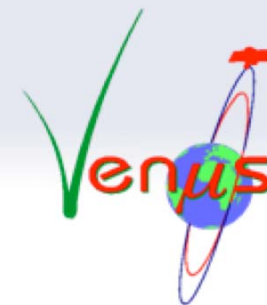


Period :

From 05/06/2005 to  
03/07/2005 :

- ❑ 9 dates
- ❑ No sunphotometer
- ❑ Sunlint conditions



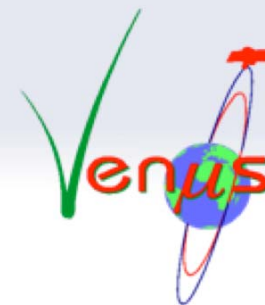


## □ Period :

- From 04/09/2005 to 03/11/2005 :
  - 11 dates peu nuageuses
  - Snow
  - No Sunphotometer



# Agoufou, Mali

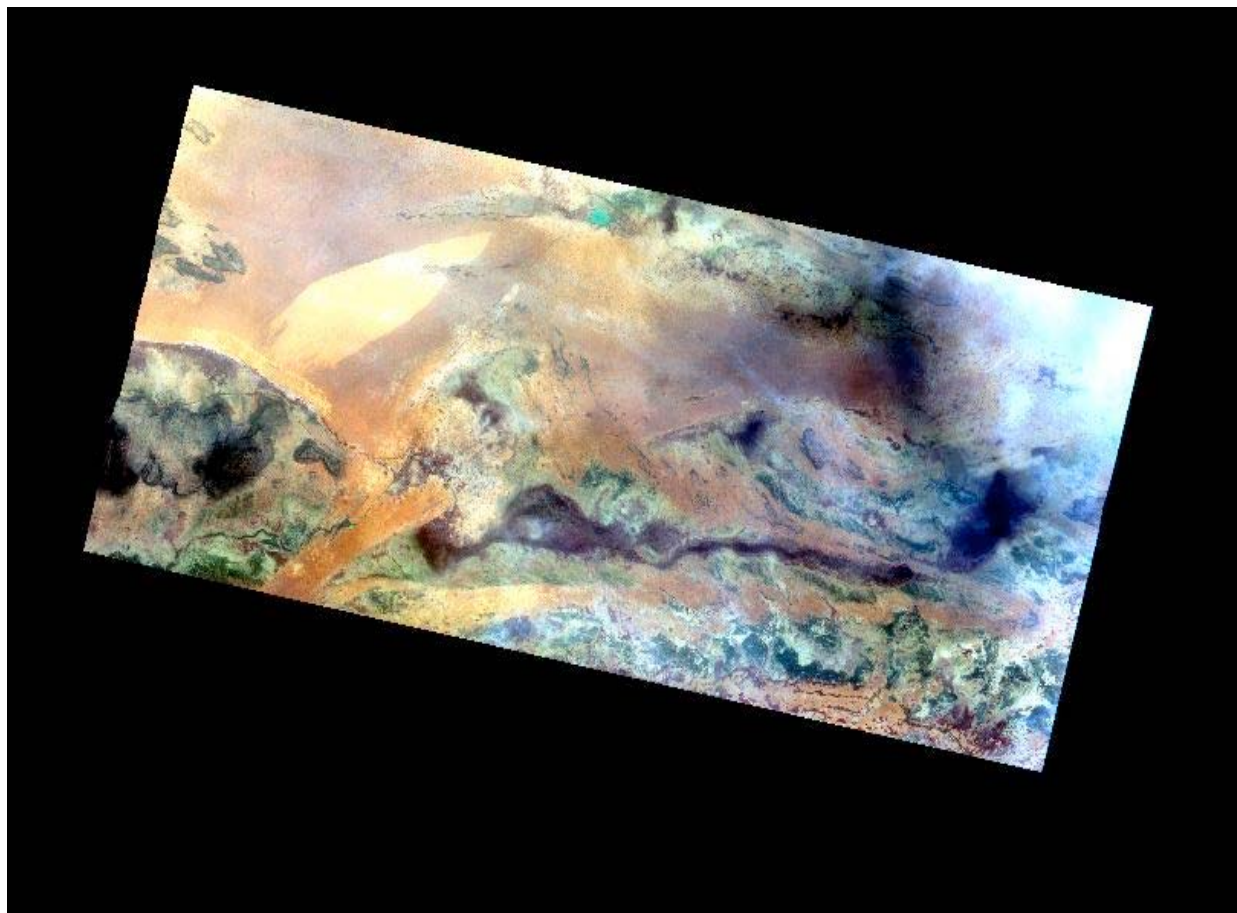


## □ Period :

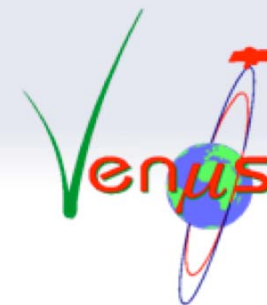
□ From 06/2007 to 10/2007

:

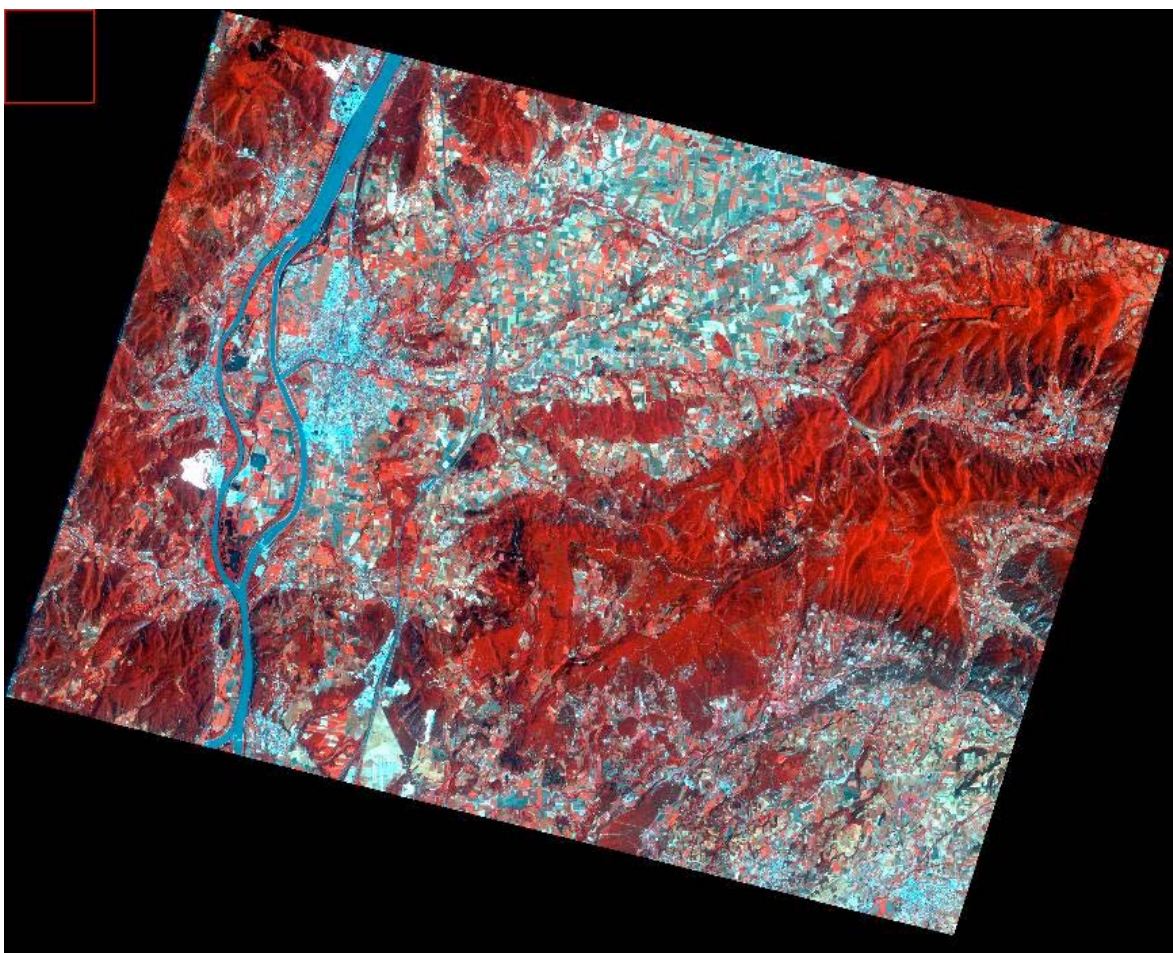
- One image /4 days
- Sunphotometer
  - Half of the time
- VZA :  $51^\circ$
- AOT up to 1.



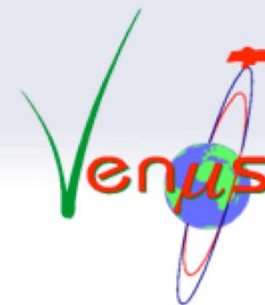
# Drôme, France



- Period :
  - From 06/2007 to 08/2007 :
    - One image /week
    - Sunphotometer

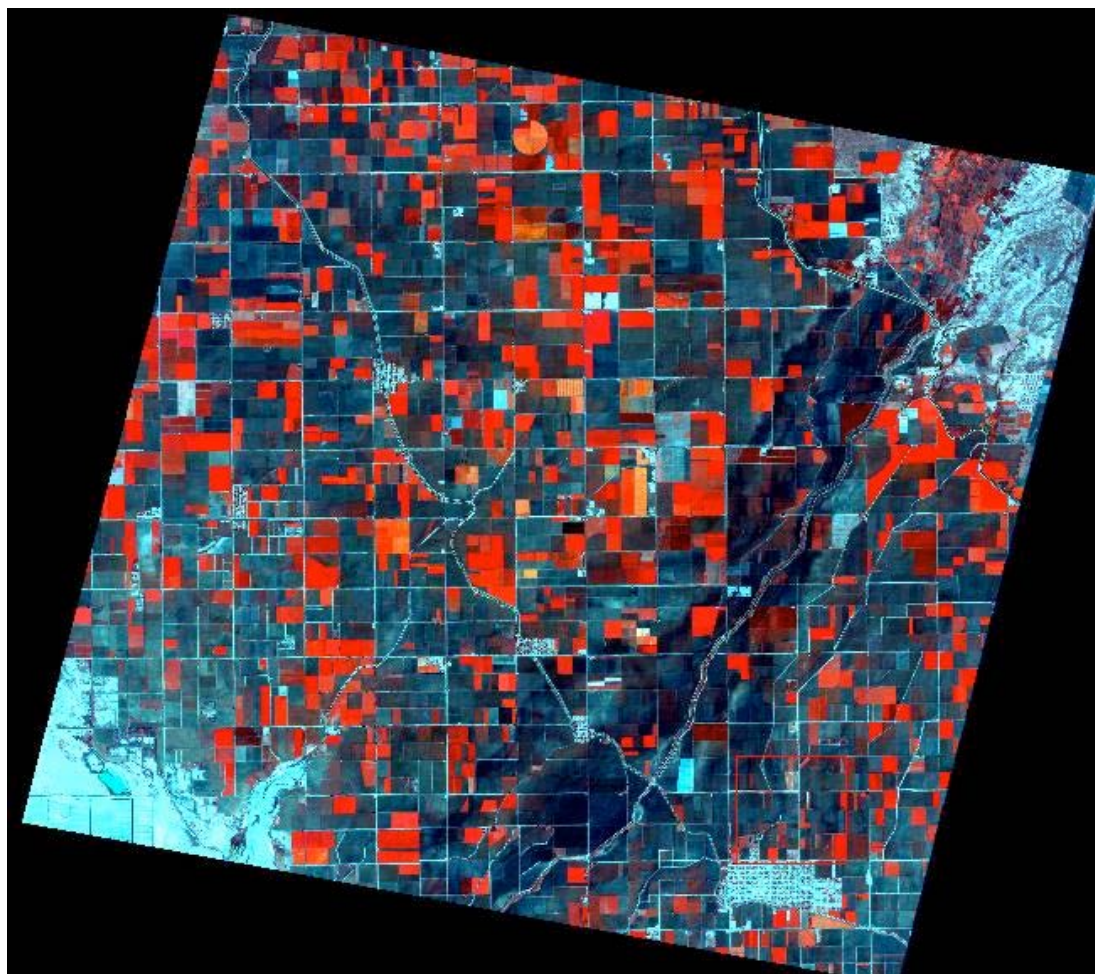


# Yaqui , Mexico



□ Period :

- From 11/2007 to 06/2008 :
  - One image /5 days
  - Sunphotometer
  - AOT up to 0.1 !

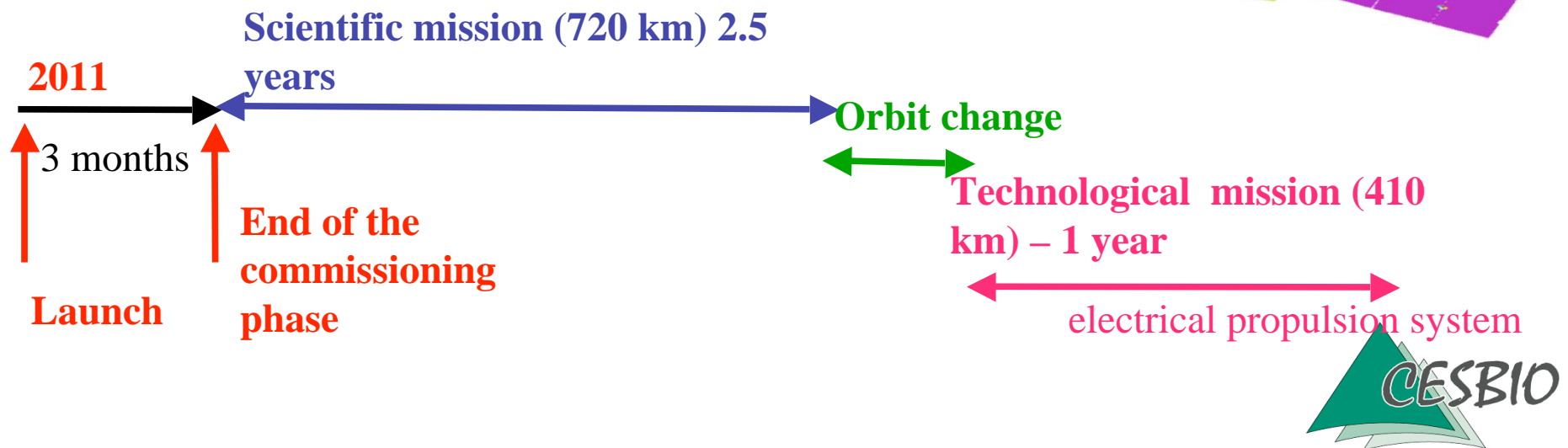
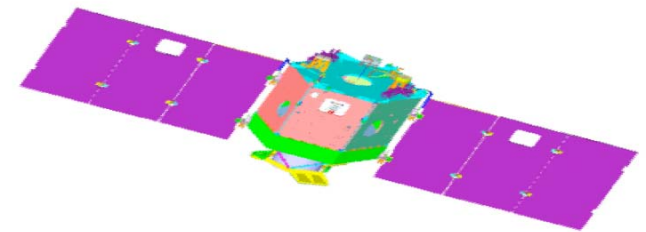


# Venus Project

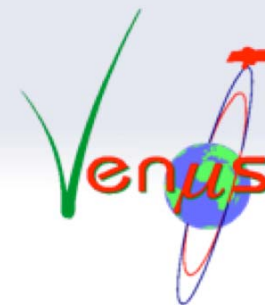
Mission in cooperation between France and Israel

- ❑ Scientific mission :
  - ❑ Observe at least 50 land sites , **every second day**,
  - ❑ **with constant viewing angles**
- ❑ Technological mission
  - ❑ Test of an electrical propulsion system

~250 kg



# Svalbard , Norway



□ Period :

- From 03/2007 to 09/2007 :
  - Few images
  - Some snow
  - No Sunphotometer

