Mapping water bodies exploiting multi resolution Terra-SAR SAR data over temperate and tropical areas: gained experience from plain flood monitoring in Western Europe, the Alsatian ried monitoring case, and in Central China, the Meixihu case (Poyang Lake).

Herve YESOU, Henri GIRAUD, Mathias STUDER, Sadri HAOUET, Xijun LAI, Lei CAO, & Paul dE FRAIPONT,
Validation of water bodies delineation
Based on HR/VHR multi resolution approach
Based on TerraSar multi mode

TerraSAR-X New mode AO

Wide Scan SAR 200*200 km², 30 m
Strip Map mode : 30*50 km², 3m
SpotLight mode : 5*10 km², 1m
Staring SpotLight : 3*4 km², 25 cm
Suivi des eaux continentales et détection des surfaces en eau, CNES, Toulouse, 6-01-2015
TerraSAR Starring SPOT Light mode

13-11-2014  0,32 m
Multi resolution analysis for water extraction validation

Meixi Hu, Poyang Lake

On a monthly basis access to TerraSAR Starring Spot Light image (32 cm)
TerraSAR Starring
SPOT Light mode
0,32cm

13-11-2014  0,32 m

Meixi HU
TerraSAR

Wide Scan Sar mode
15-11-2014 35m

Starring SPOT Light mode
13-11-2014 0,32 m

Meixi HU
TerraSAR Starring
SPOT Light mode

13-11-2014  0,32 m

Meixi HU
Monitoring sensitive areas based on EO data: preparation of Sentinel2 arrival

Take Five site in Alsatian Plain (France)

Plain flood monitoring
Biodiversity, sensitive agro natural systems
Monitoring sensitive areas based on EO data
TerraSAR multimodes

Take Five site in Alsatian Plain (France)

Strip Map mode : 30*50 km², 3m
SpotLight mode : 5*10 km², 1m
Staring SpotLight : 3*4 km², 25 cm
New TerraSAR X Staring Spot Light images
Classical TerraSAR X Strip map images
Multi resolution analysis for water extraction validation

Muttersoltz, Alsatian flood Plain

Comparison TS Staring Spot Light and Strip map
Flood occurrence map for very small wetland areas
Water surface monitoring exploiting TerraSAR multimodes data
Sentinel image acquired on the 3 of May 2015.
2 missions in field, synchronous with SPOT4 acquisition

March 4th 2013

GPS track
TAKE5 SPOT4 exploitation

Relation between flooded areas observed and flow measured along the Ill river (area less than 25 km$^2$)

Visible decrease of water surface in 15 days
TAKE5 SPOT4 exploitation

Possibility to follow very small wetlands complex presenting in fact an unexpected/unknown (?) dynamic.
L’ESPACE...
...AU SERVICE DE LA TERRE

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