



# „ Der Copernicus Global Land Service“

Dr. Helmut Staudenrausch, DLR

Nationales Forum für Fernerkundung und Copernicus 2017

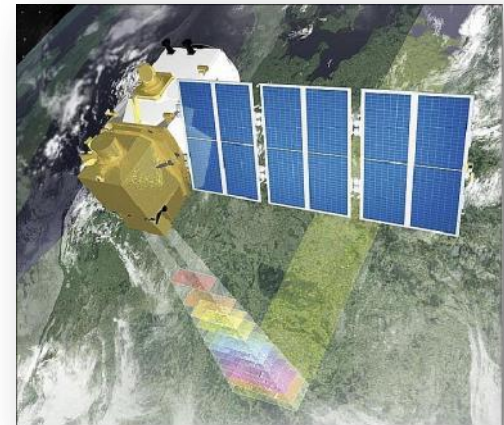
# Neue Möglichkeiten für die Entwicklungszusammenarbeit



- **Global:** Satellitendaten mit globaler Abdeckung für globales Land-, Meeres- und Atmosphärenmonitoring sowie globale Produkte für Klimafragen, Katastrophenmanagement und zivile Sicherheitsfragen
- **Umfassend anwendbar:** Vielfältige optische und Radardaten, höhere räumliche Genauigkeit, höhere Frequenz, mehr Informationsgehalt
- **Investitionssicher:** Langfristiges operationelles Programm mit verlässlichen Daten und Produkten
- **Für alle nutzbar:** Freie und offene Datenpolitik

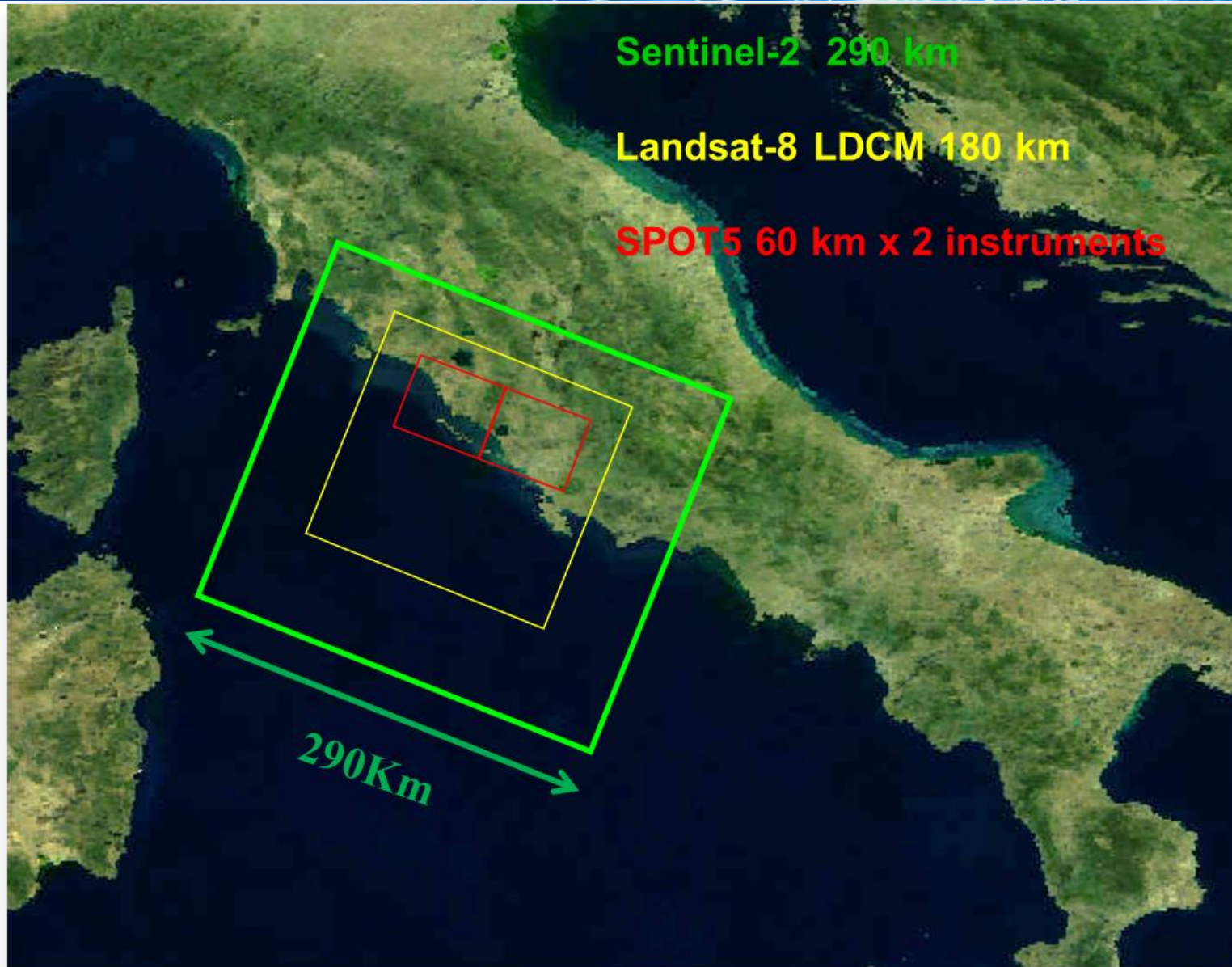
# Sentinel-2

- Systematische Abdeckung alle 5 Tage, räumliche Auflösung 10 m
- Alle kontinentalen Landoberflächen der Erde zwischen 56° südl. und 84° nördl. Breite, alle größeren Inseln (>100 km<sup>2</sup>), alle EU Inseln;
- Küstenzonen bis 20 km von der Küste seewärts, Binnengewässer, Mittelmeer und weitere abgeschlossene Meere





# Sentinel-2 und Landsat



Sentinel-2 290 km

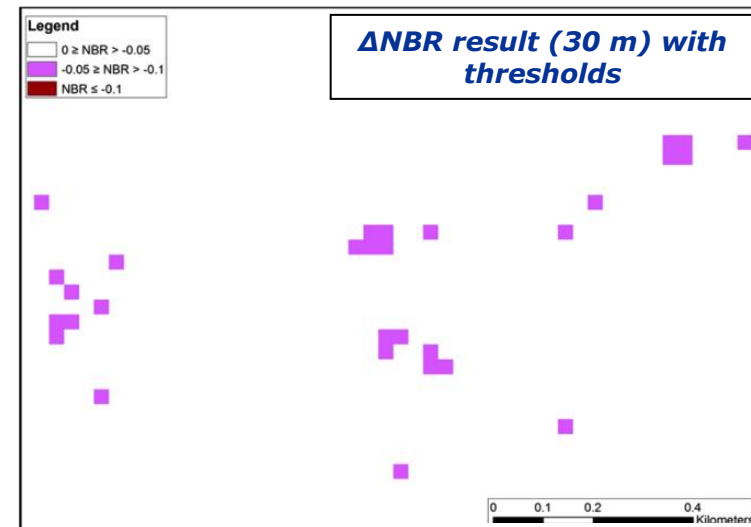
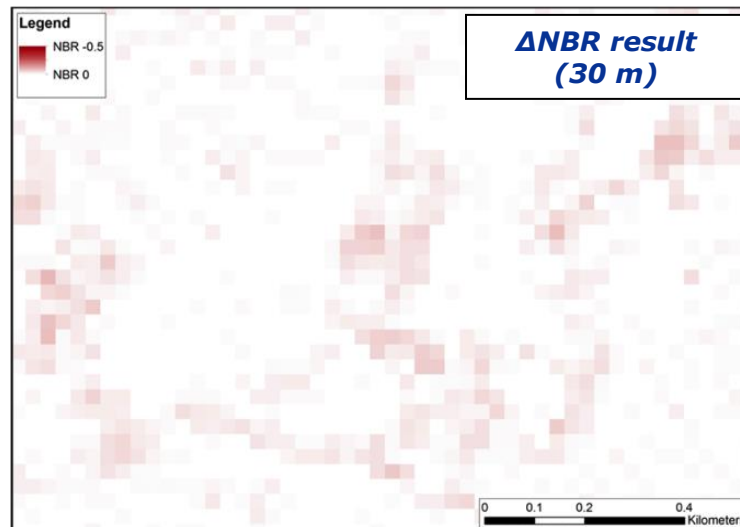
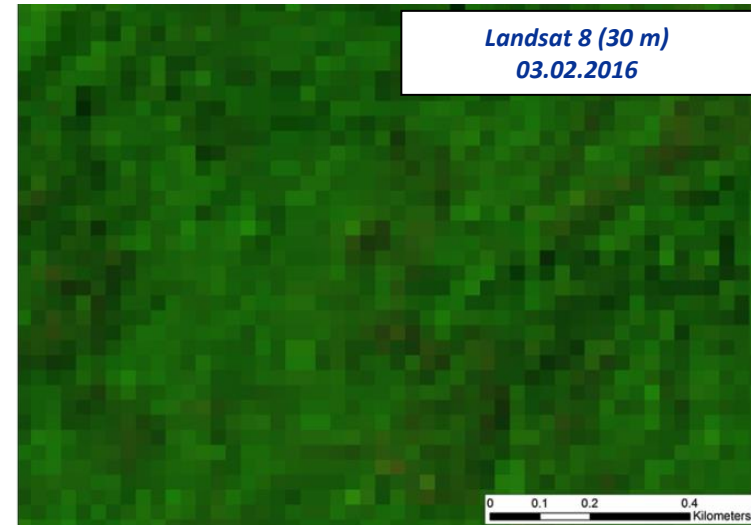
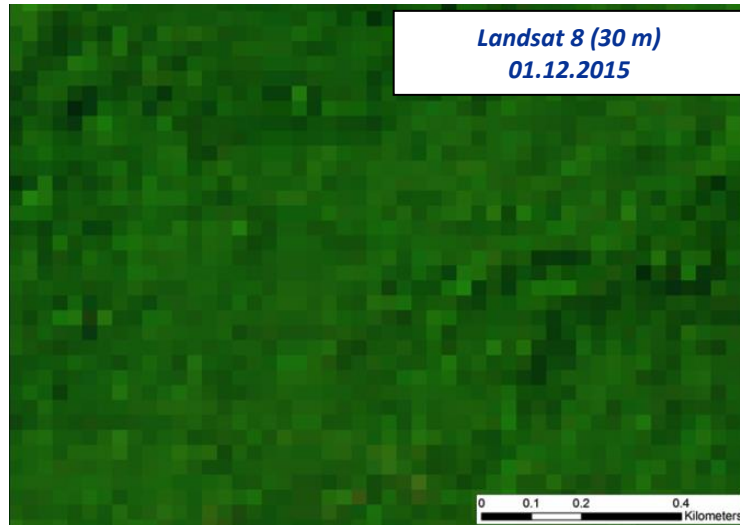
Landsat-8 LDCM 180 km

SPOT5 60 km x 2 instruments

290Km

# Sentinel-2 und Landsat

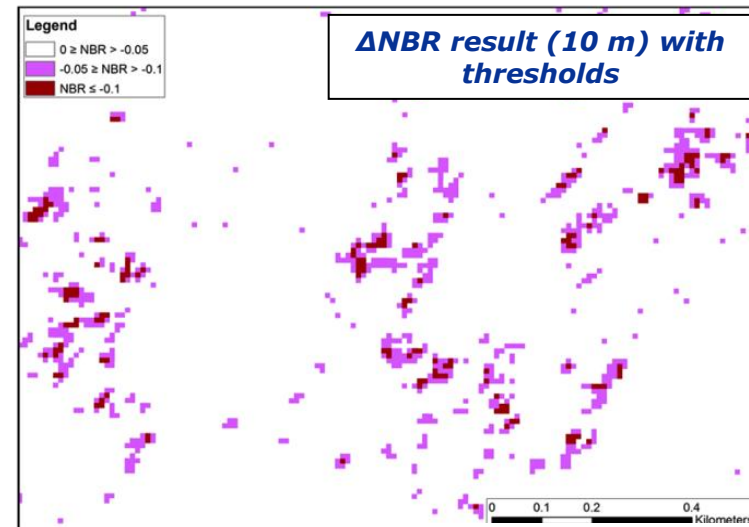
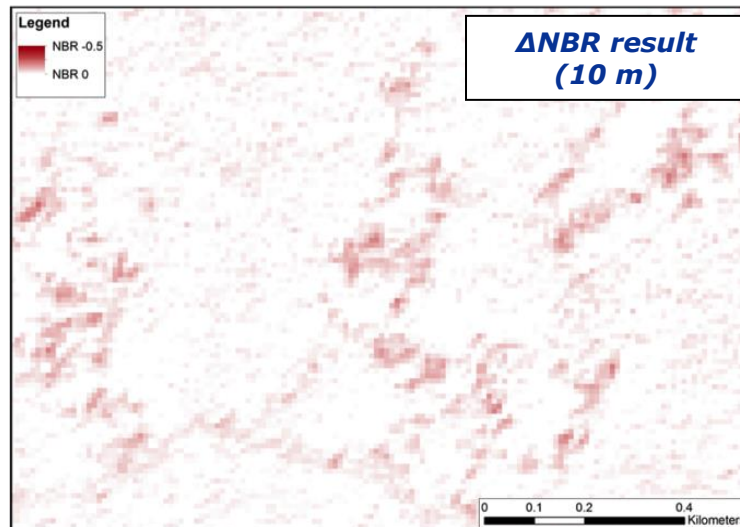
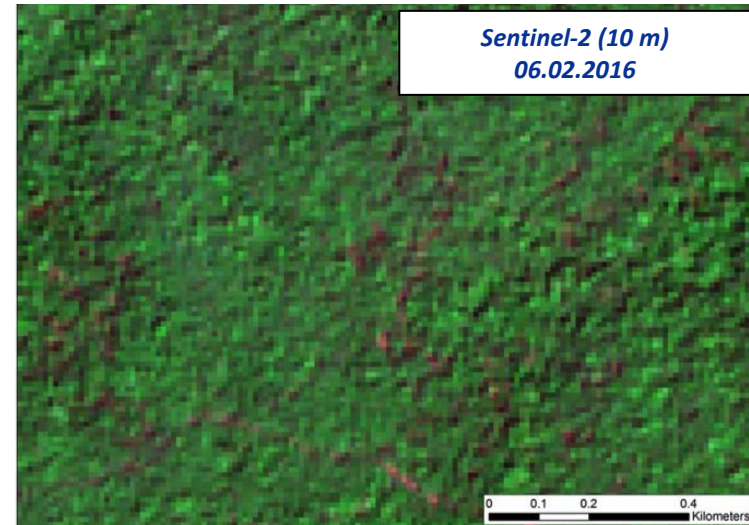
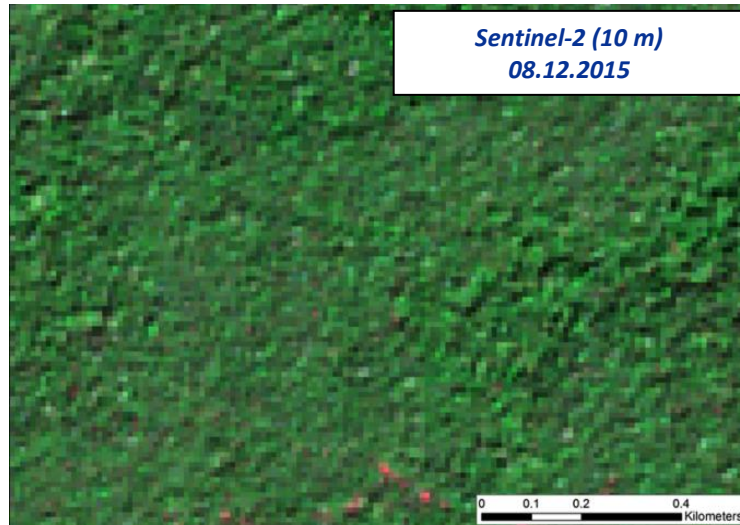
## Selective Logging in Kambodscha



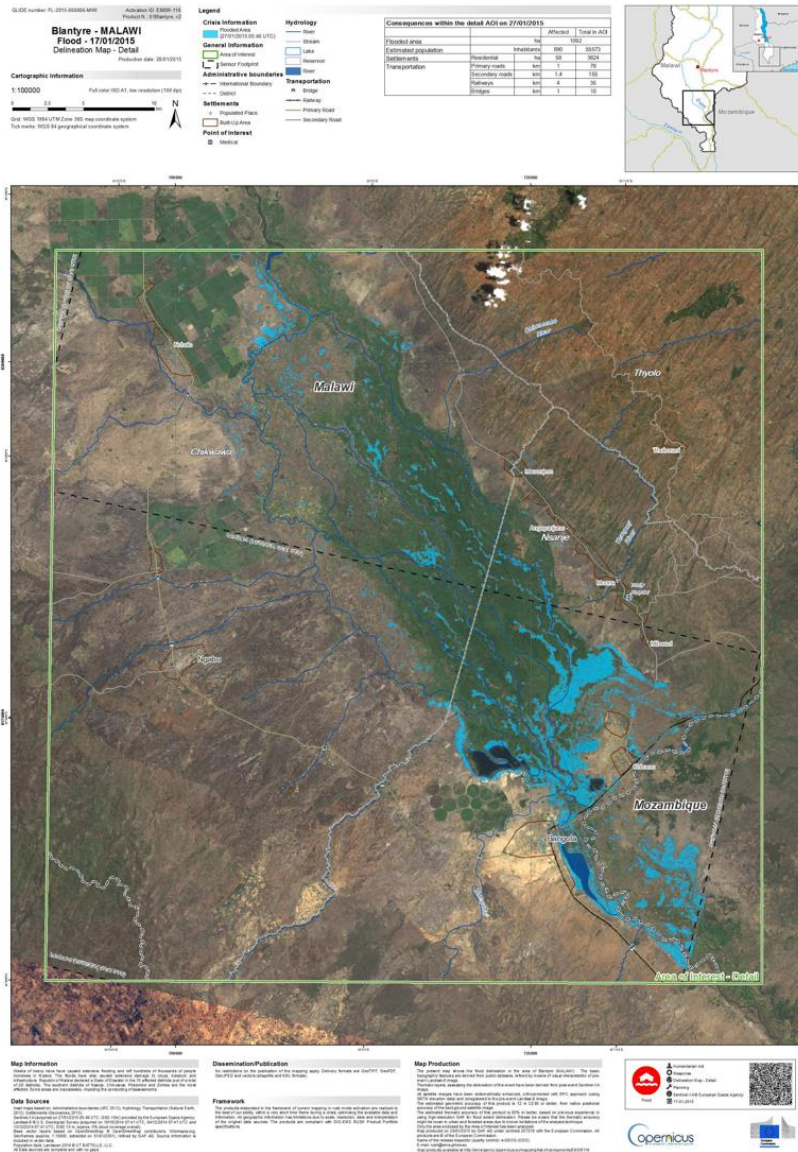


# Sentinel-2 und Landsat

## Selective Logging in Kambodscha



# Sentinel-1 Überflutungskartierung

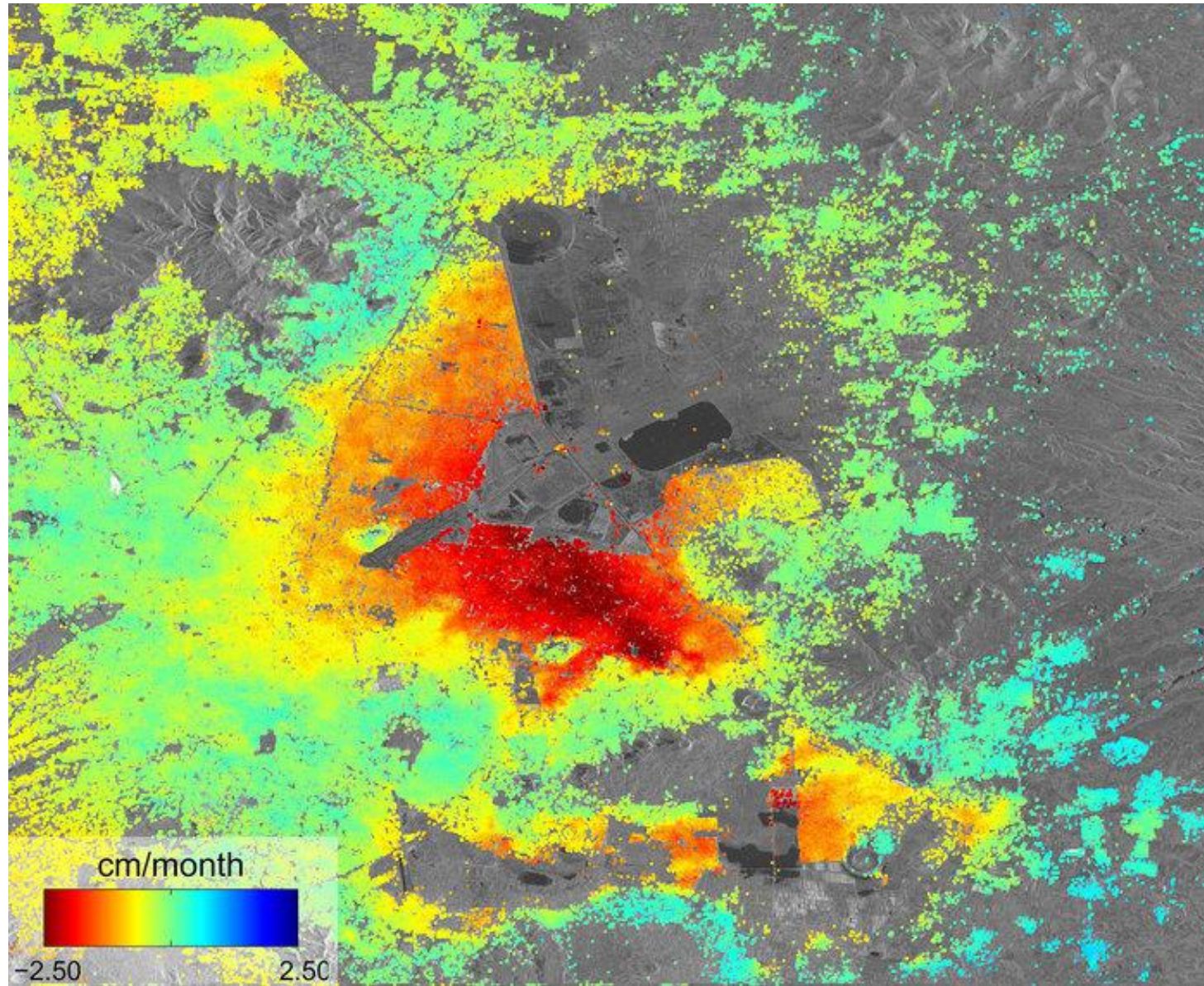


- Überflutung in Malawi
- Januar 2015
- Flood delineation map basiert auf Sentinel-1 Daten
- Copernicus Emergency Management Service



# Sentinel-1

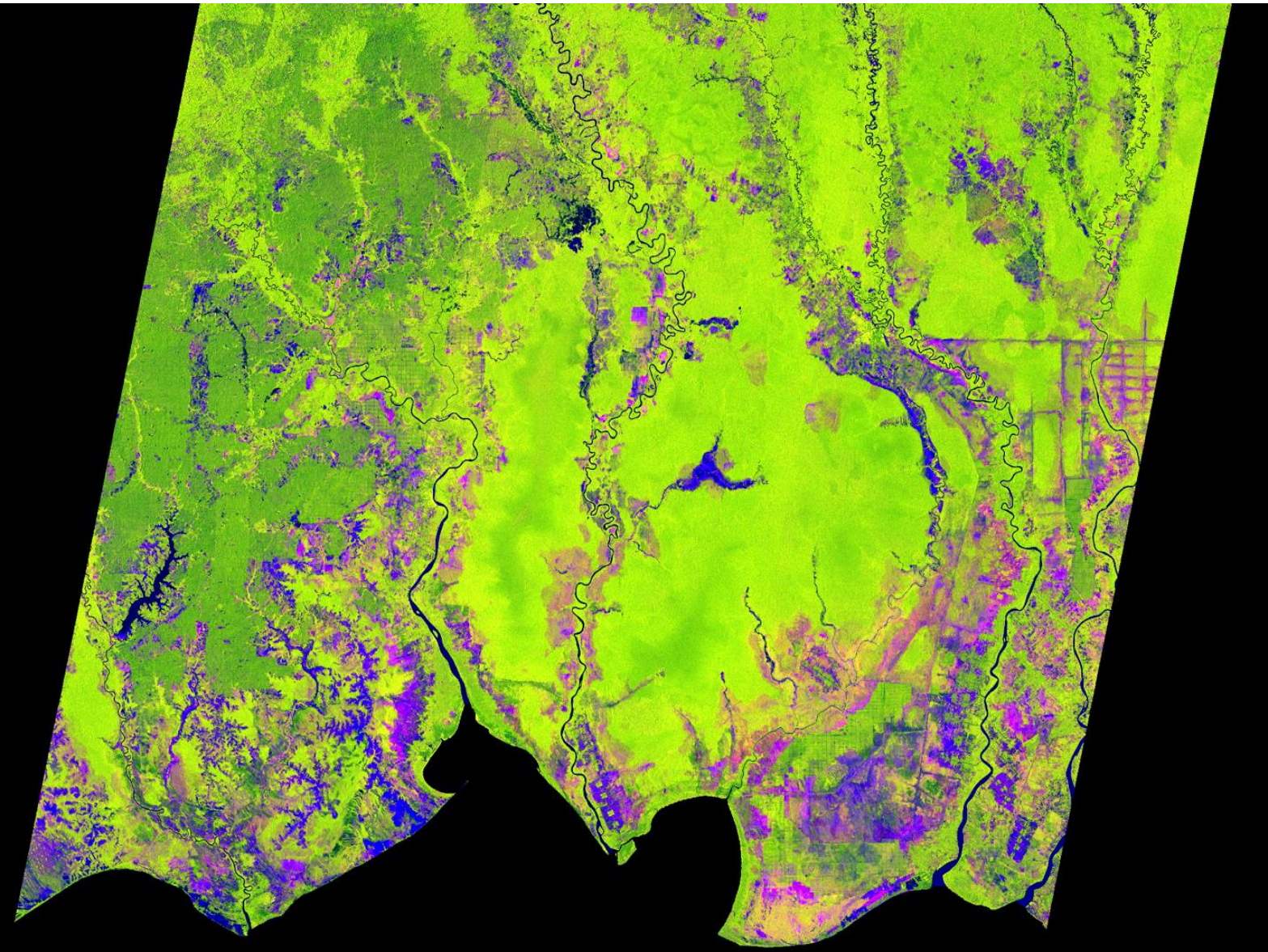
## Bodenbewegung in Mexiko-City,



©ESA



# Sentinel-1 Wald Borneo



## Borneo

Multi-temporal dual-pol composite of 13 Sentinel-1 images different times between March 2015 and February 2016 in 10m resolution.

Red: VV max in time

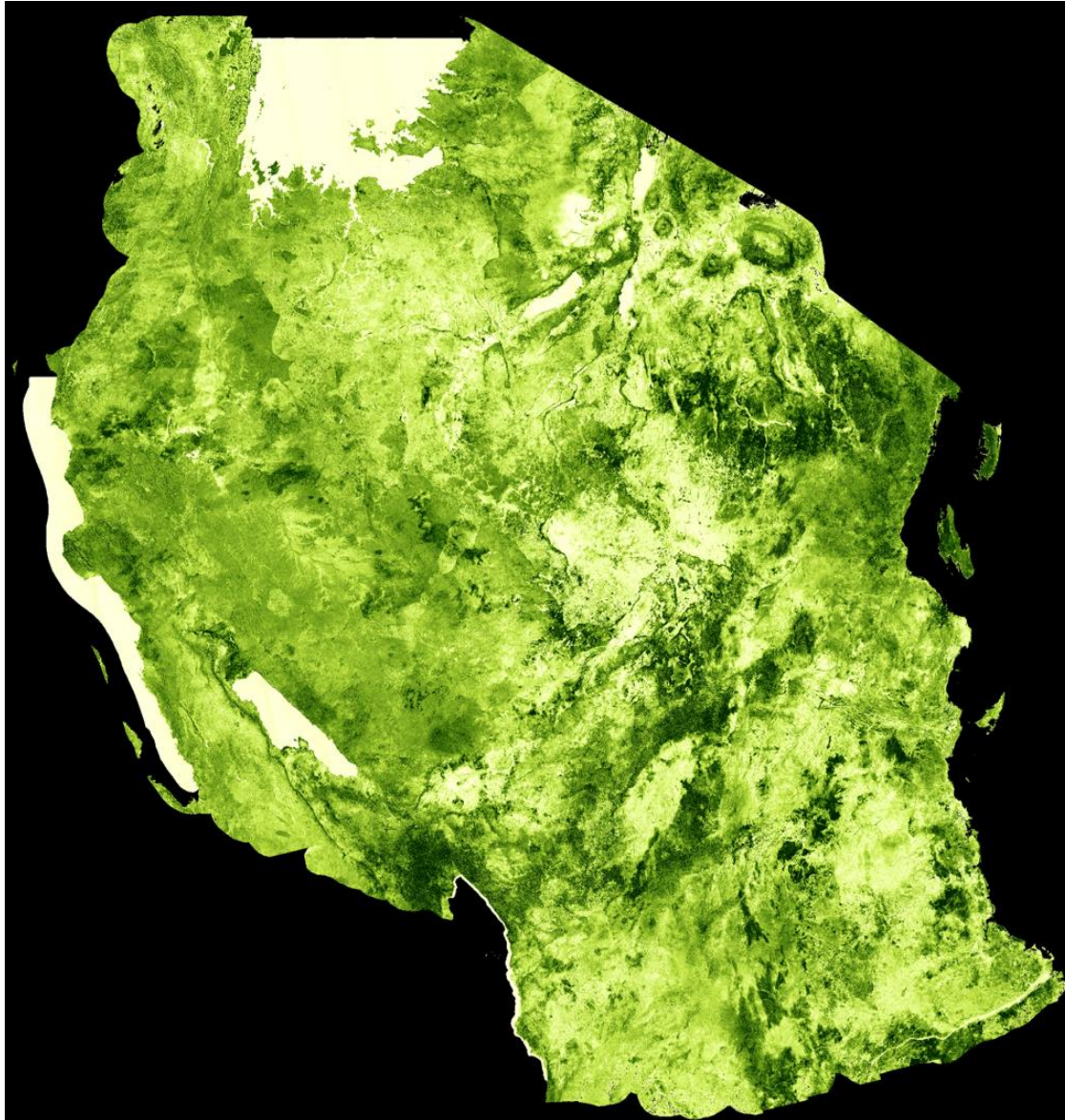
Green: VH-min value in time

Blue: VH pol StDev over time

Source: FAO



# Sentinel-1 Mosaik Tanzania



## Tanzania

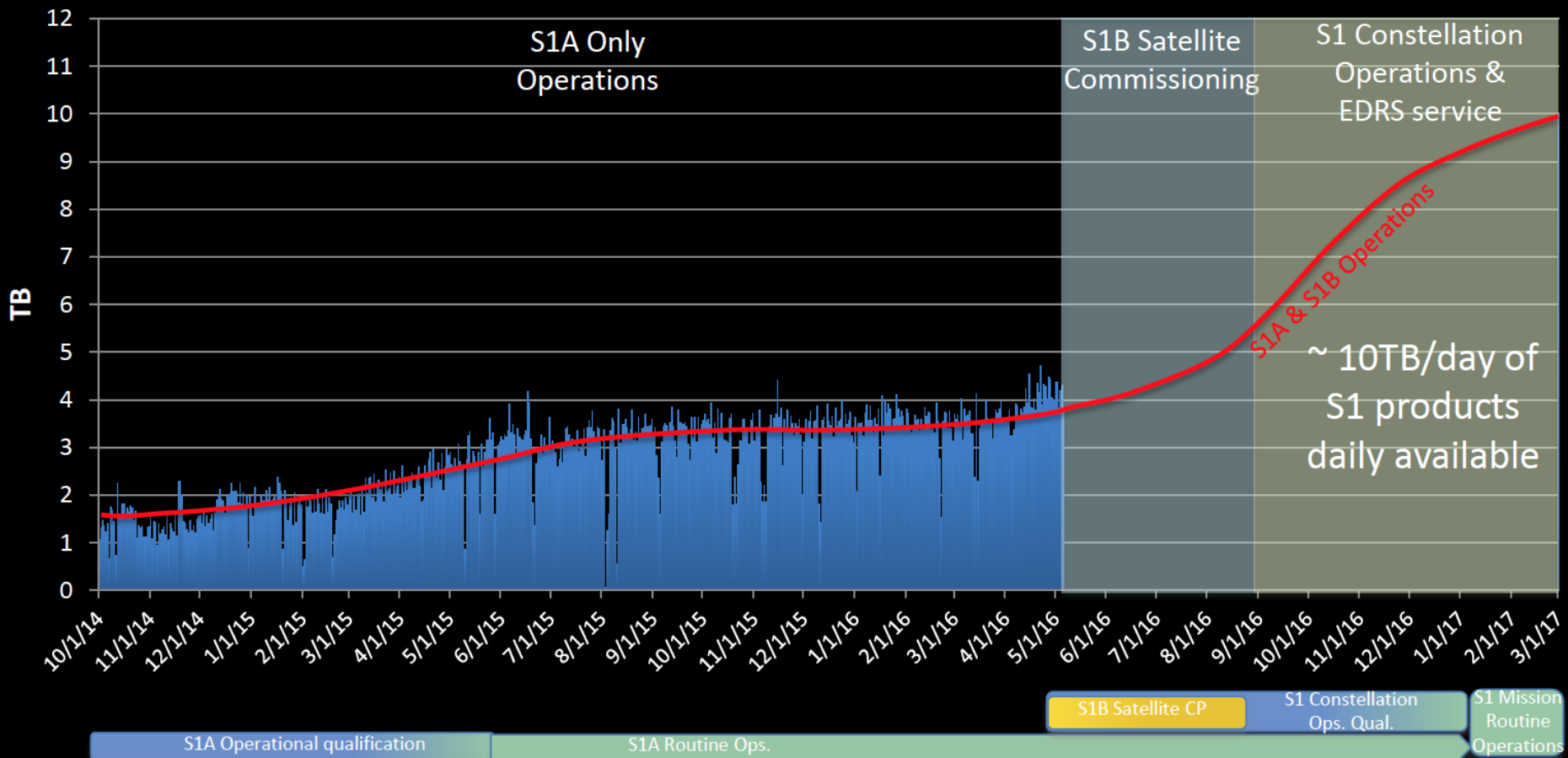
Mosaic based on Sentinel-1 dual-pol acquisitions over 5 swathes in 10 days in 10m resolution showing the sensitivity of the signal to woody biomass in savannah areas during the dry season.

Source: FAO



# Sentinel-1 Datenproduktion

## Total S1 mission daily production volume evolution [TB]



# Global Land Service Produktportfolio

- Globale Parameter zu Vegetation, Energie- Wasserhaushalt in mittlerer Auflösung und naher Echtzeit
- Hot Spot Monitoring in hoher Auflösung
- „Analysis-Ready Data“ (z.B. Sentinel-2 Mosaik)

Theme	Near-Real Time Product	Spatial Resolution	
		Coarse ≥1km	Medium 300m
Vegetation	Fraction of photosynthetically active radiation absorbed by the vegetation	In production	In development
	Fraction of green vegetation cover	In production	In development
	Leaf Area index	In production	In development
	Normalized Difference Vegetation Index	In production	In production
	Vegetation Condition Index	In production	N/A
	Vegetation Productivity Index	In production	N/A
	Dry Matter Productivity	In production	In development
	Burnt Area	In production	In production
Energy budget	Land Surface Temperature	In production	N/A
	Top Of Canopy Reflectance	In development	In development
	Surface Albedo	In development	In development
Water	Soil Water Index	In production	N/A
	Water Bodies	In production	In development



# Global Land Service Vegetationsindices



Biophysical parameter

Show difference with LTA (1999-2013) on map

Growing season from July to June

Name: MaxY

Vegetation

- Dry Matter Productivity
  - FAPAR
    - Version 1 1
  - FCOVER
  - Leaf Area Index
    - Version 1 7
  - NDVI

Time

- 2017
- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009
- 2008
- 2007

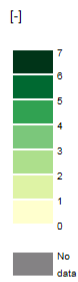
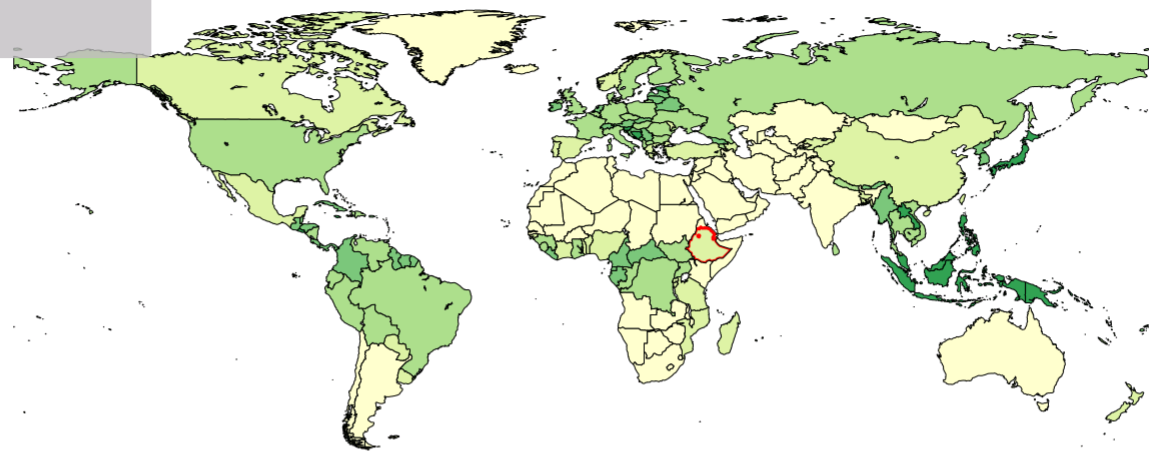
Country

- Djibouti
- Equatorial Guinea
- Eritrea
- Ethiopia
- Gabon
- Gambia
- Ghana
- Guinea-Bissau
- Guinea
- Kenya
- Lebanon

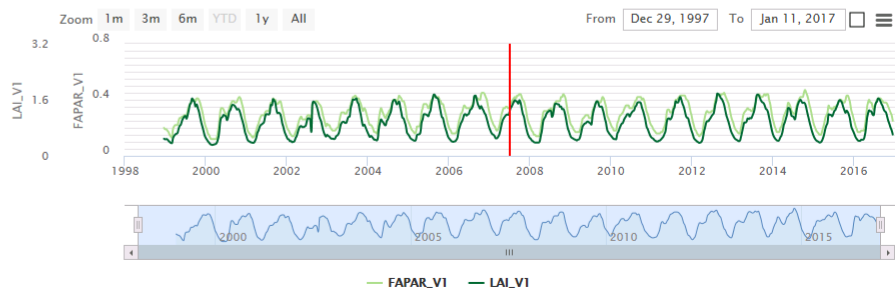
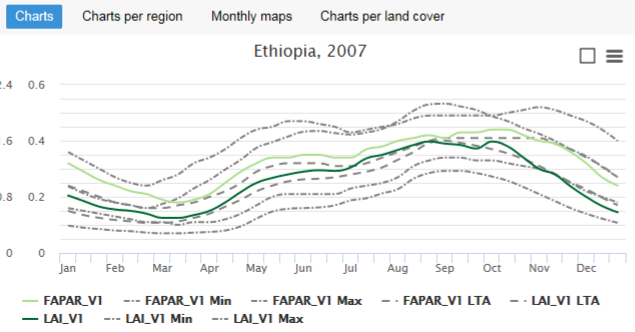
Admin level 1

LandCover

2007-07-01  
Product type: LAI\_V1



61.12411, -42.38840



# Global Land Service Soil Water Index

Global Land Service  
Soil Water Index

44.80406, -8.35994

Version 2.1.15-20161004

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Soil Water - 10-daily Soil Water Index V3

Help

Collection

- Daily Soil Water Index V3 (3679 products)
- 10-daily Soil Water Index V3 (362 products)
- Soil Water Index static layers (4 products)
- Soil Water Index Time Series V3 (1 product)

Basic

Date Slot

Start date 01/01/2007

End date 27/01/2017

ROI

Advanced

Search Reset

Number of results per page 100

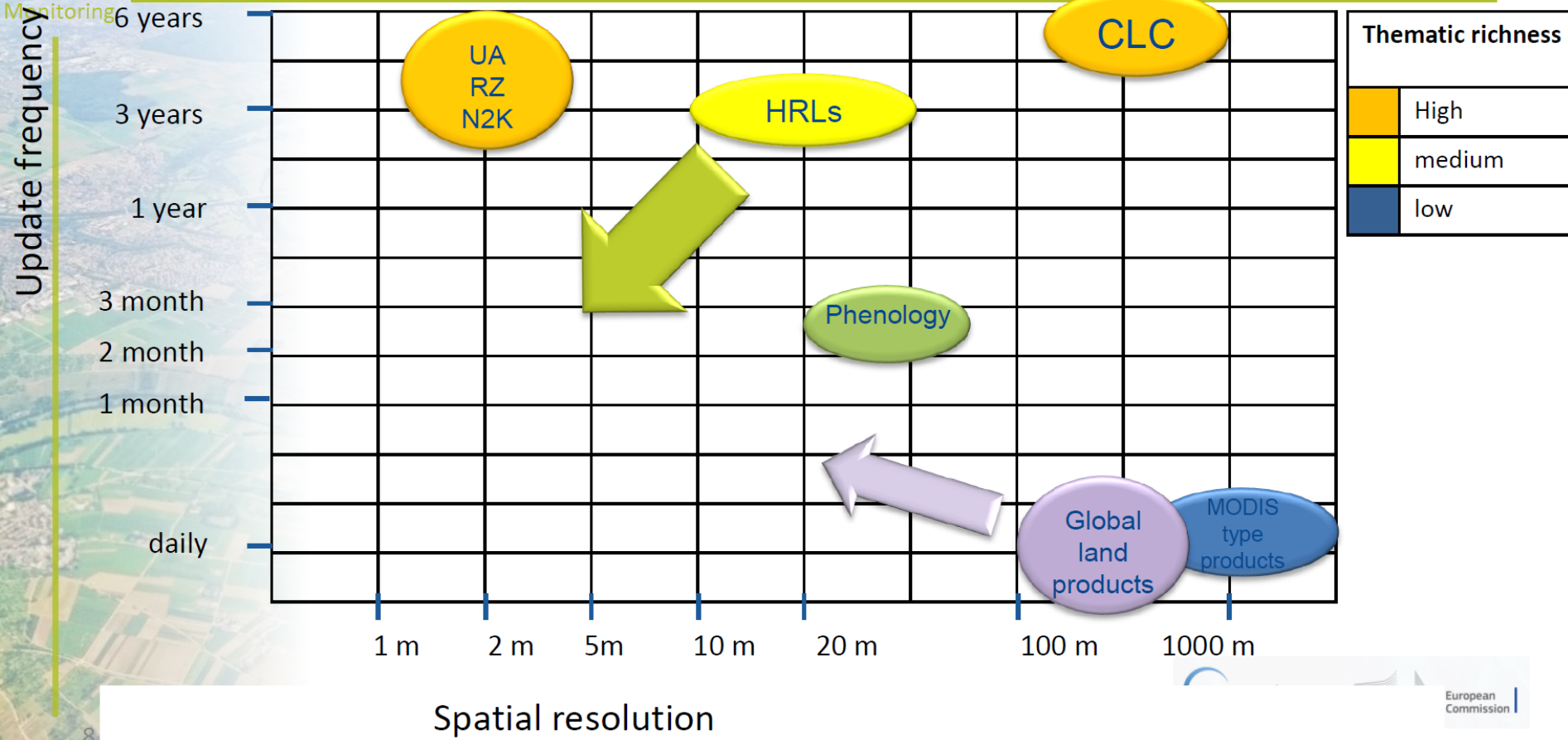


# Global Land Service Weiterentwicklung

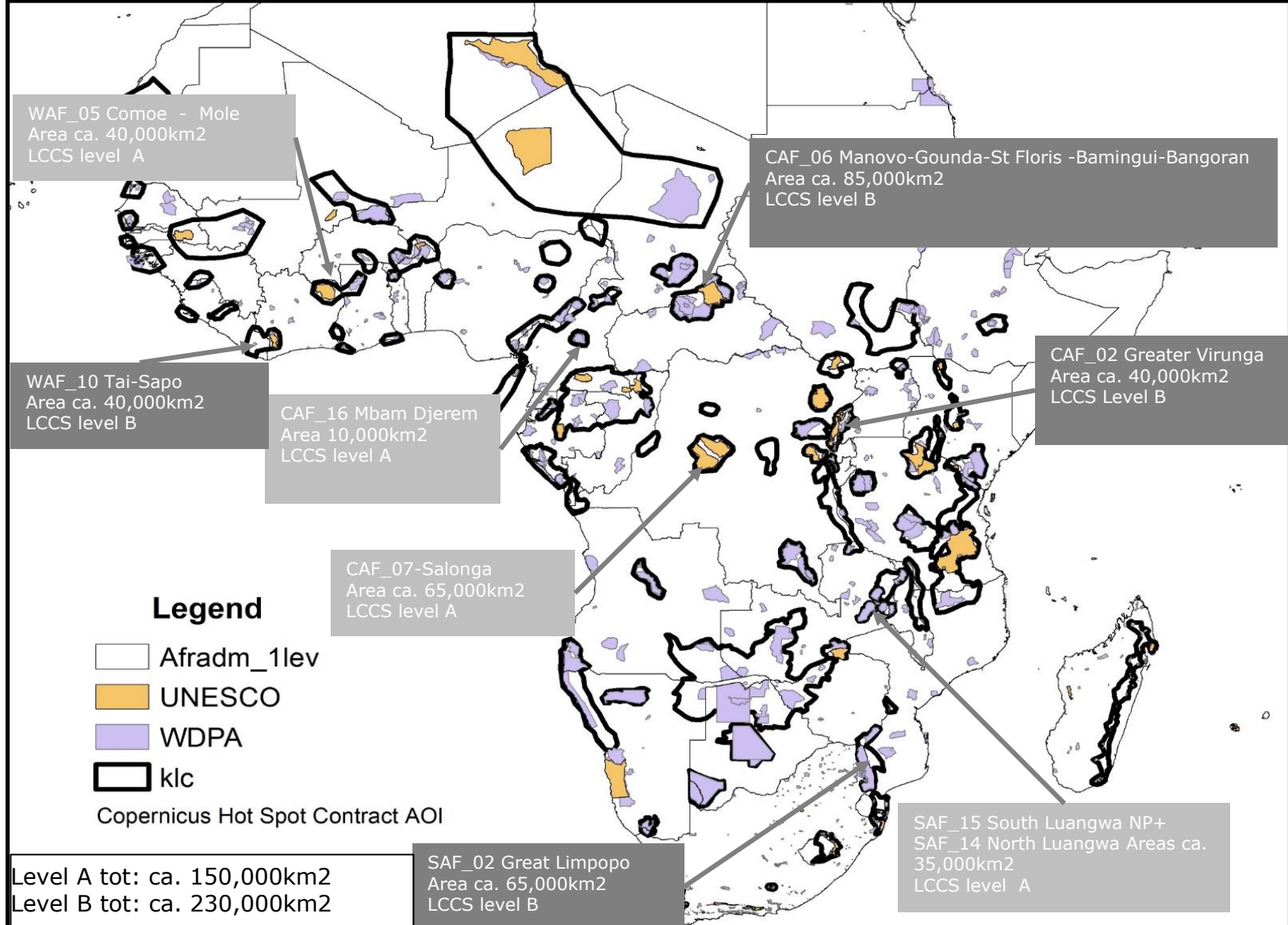


Land Monitoring

## Evolution in update frequency and spatial resolution



# Global Land Service Hot Spot Monitoring

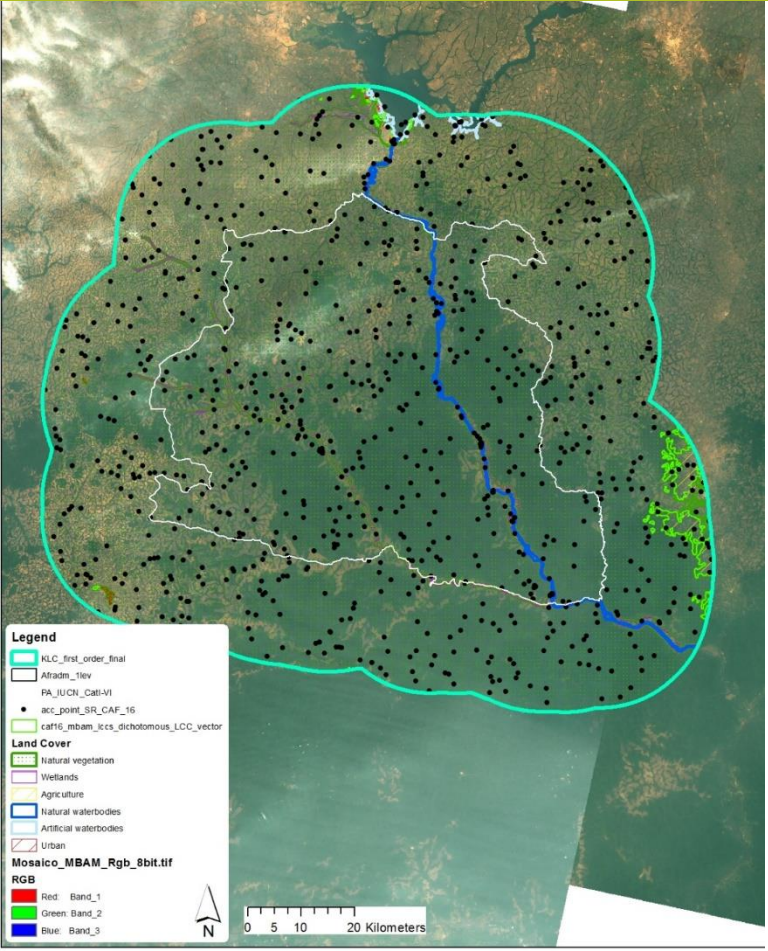




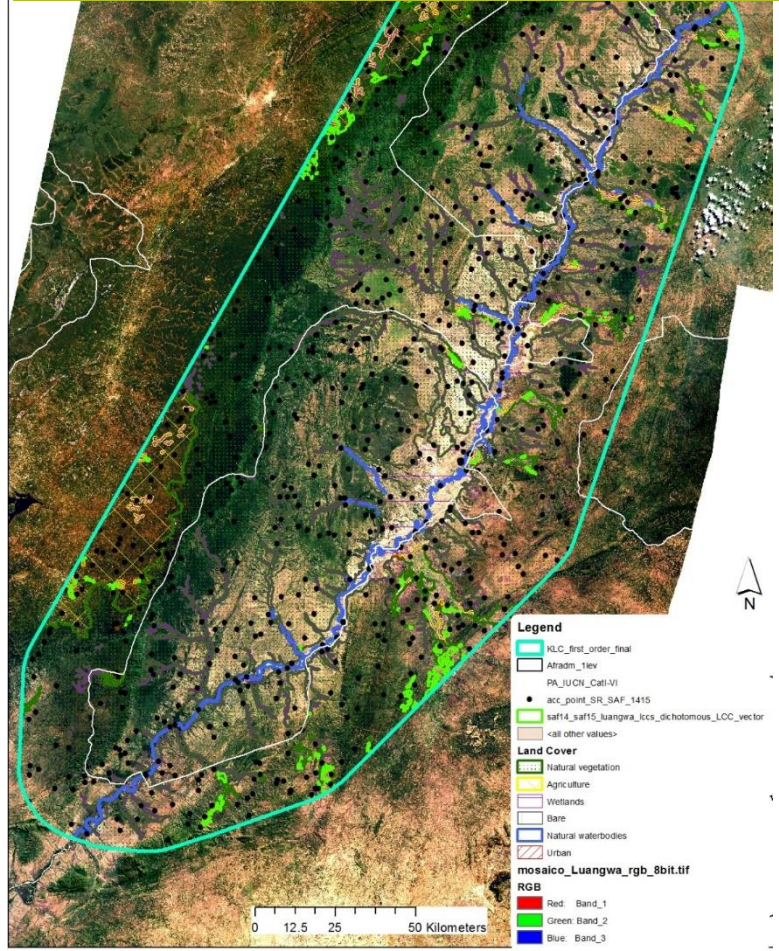
# Global Land Service Hot Spot Monitoring



**CAF16 Mbam Djerem (Cameroon)  
Prototype**

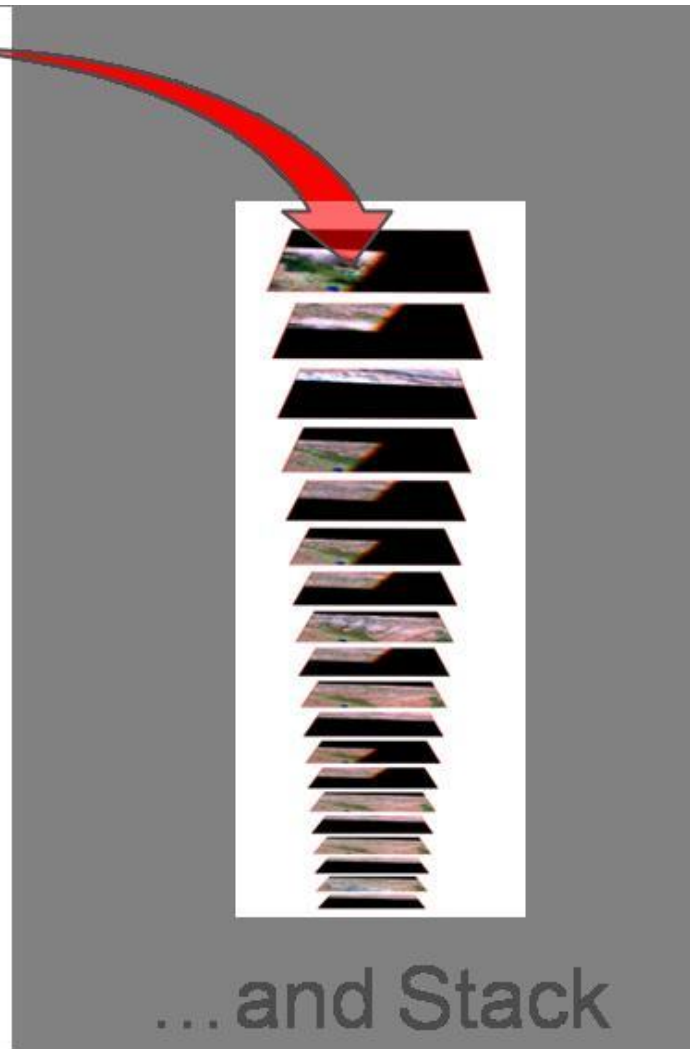
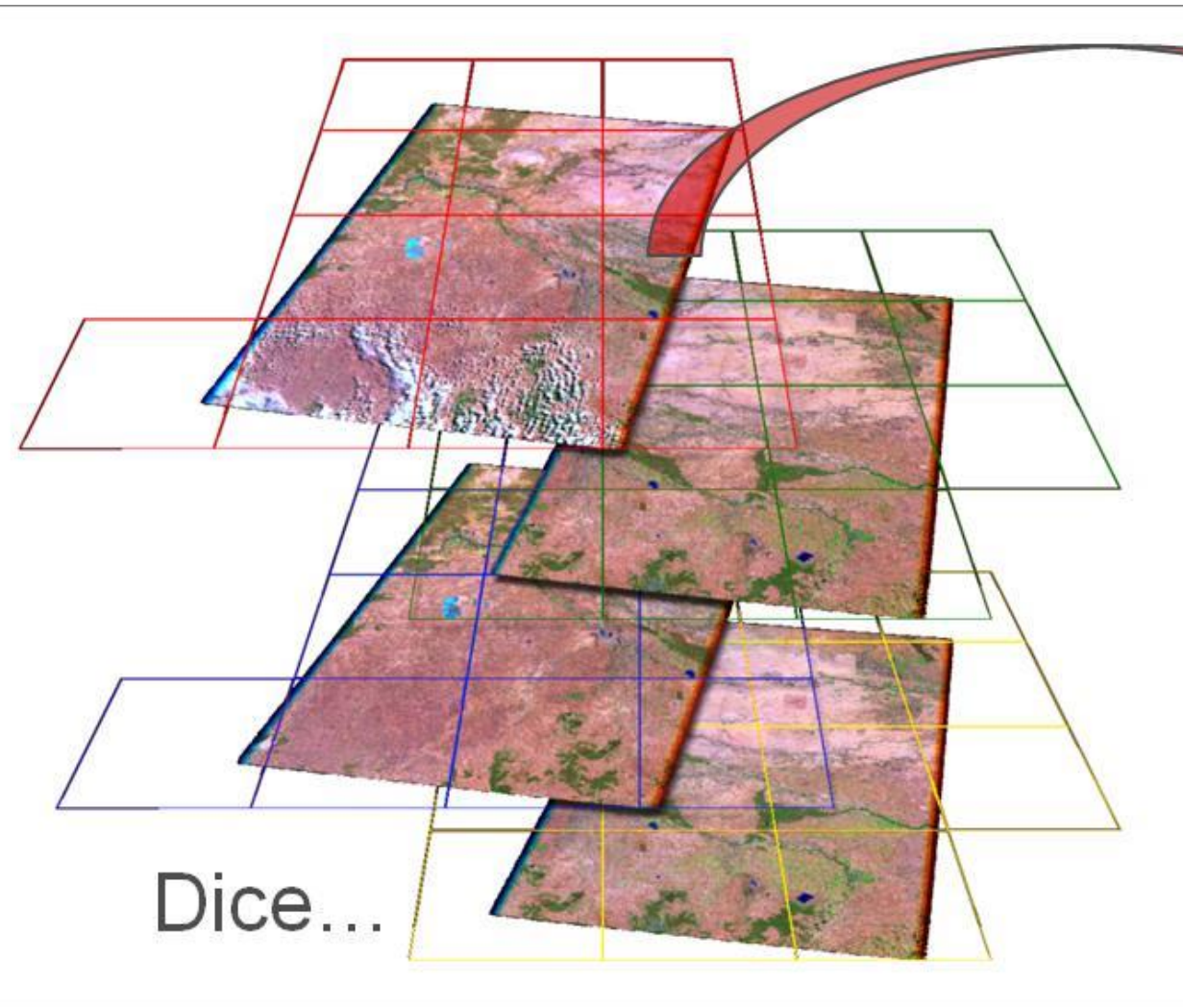


**SAF14\_SAF15 Luangwa (Zambia)  
Prototype**





# Global Land Service Analysis-Ready-Data



Ende

**Vielen Dank!**

**Fragen?**

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