

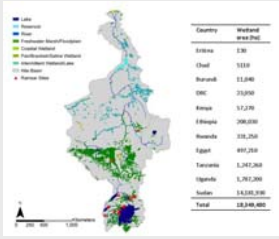
# ALOS K&C Initiative

An international science collaboration led by JAXA

## The Nile Basin: Wetlands of the upper White Nile

Lisa-Maria Rebelo, International Water Management Institute, Addis Ababa, Ethiopia

### Study site and data acquisition:



Satellite image acquisition for the Nile Basin



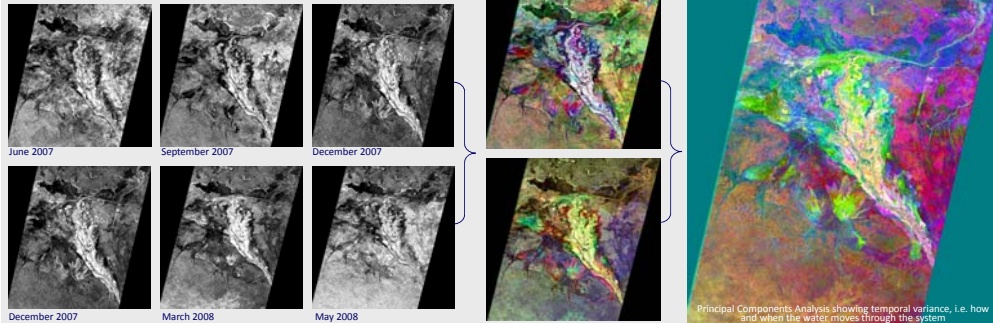
White Nile flow (green) and dates of image acquisitions (red)

### The Sudd Ramsar Site:



- 57 million hectares of the Sudd have been designated as a Ramsar site
- The Sudd is among the most important wetlands for birds in Africa, and is a Birdlife International IBA
- Located on the eastern flyway between Africa and Europe/Asia, the Sudd is one of the most important wintering grounds in Africa for Palaearctic migrants, providing essential habitats for millions of migrating birds
- The diverse range of habitats supports a rich array of aquatic and terrestrial fauna including over 400 bird and 100 mammal species and a high density and diversity of aquatic plants

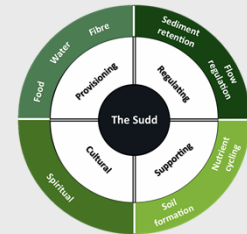
### Mapping inundation extent using ALOS PALSAR:



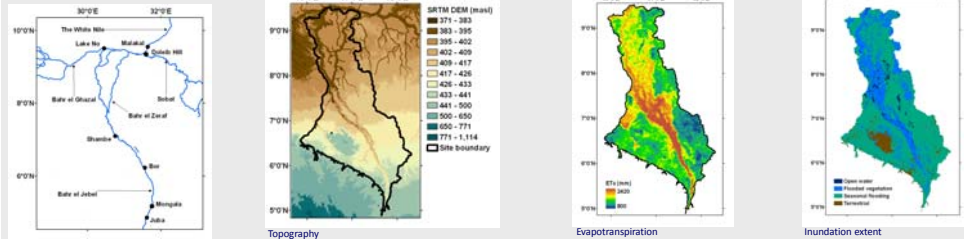
Principal Components Analysis showing temporal variance, i.e. how and when the water moves through the system

### The Sudd Ecosystem Services:

- In addition to supporting high levels of biodiversity, the Sudd provides many other ecosystem services
- The socio-economic activities of the Nilotics living within and adjacent to the Sudd region are almost entirely dependent on the Sudd due to the many provisioning services provided by the wetland
- Their socio-economic activities are dependent on the annual floods to regenerate the floodplain grasses that feed their cattle, which are the backbone of the Nilotic economy

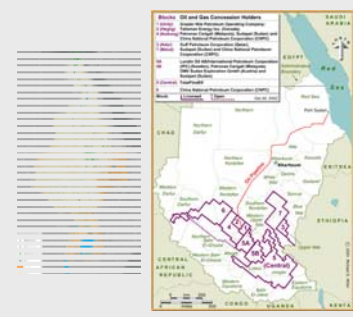


### Quantifying the water balance:



### Threats to the wetland:

- With the end of the civil war a major threat to the wetland is the completion of the Jonglei Canal. The original aim of the canal was to divert inflows to the Sudd in order to reduce evaporation from the wetland, thereby gaining approximately 4,700 Mm<sup>3</sup> of water for downstream use
- recent discovery and exploitation of oil reserves in the Sudd threatens the biodiversity and the hydrology of the system



All PALSAR images have been provided courtesy of JAXA, and acquired as part of the ALOS Kyoto and Carbon Initiative for Science Team product development: Prototype area, the Upper Nile