



Using airborne imagery to map the distribution, abundance, and floral cycle of flowering plants – A world first study conducted in the context of the EU-funded Bee Health Programme at *icipe*

Geo-Information Unit

International Centre of Insect Physiology and Ecology (*icipe*), Kenya

Why is this important?

- Understand how bee colonies interact with the ‘floral environment’.
- Enables beekeepers to manage “what to expect from an apiary”.
- Value of flowering plants in view of **pollination** and **food security**, also linked to conservation.
- Understand **biodiversity** and measure **climate change** effects.

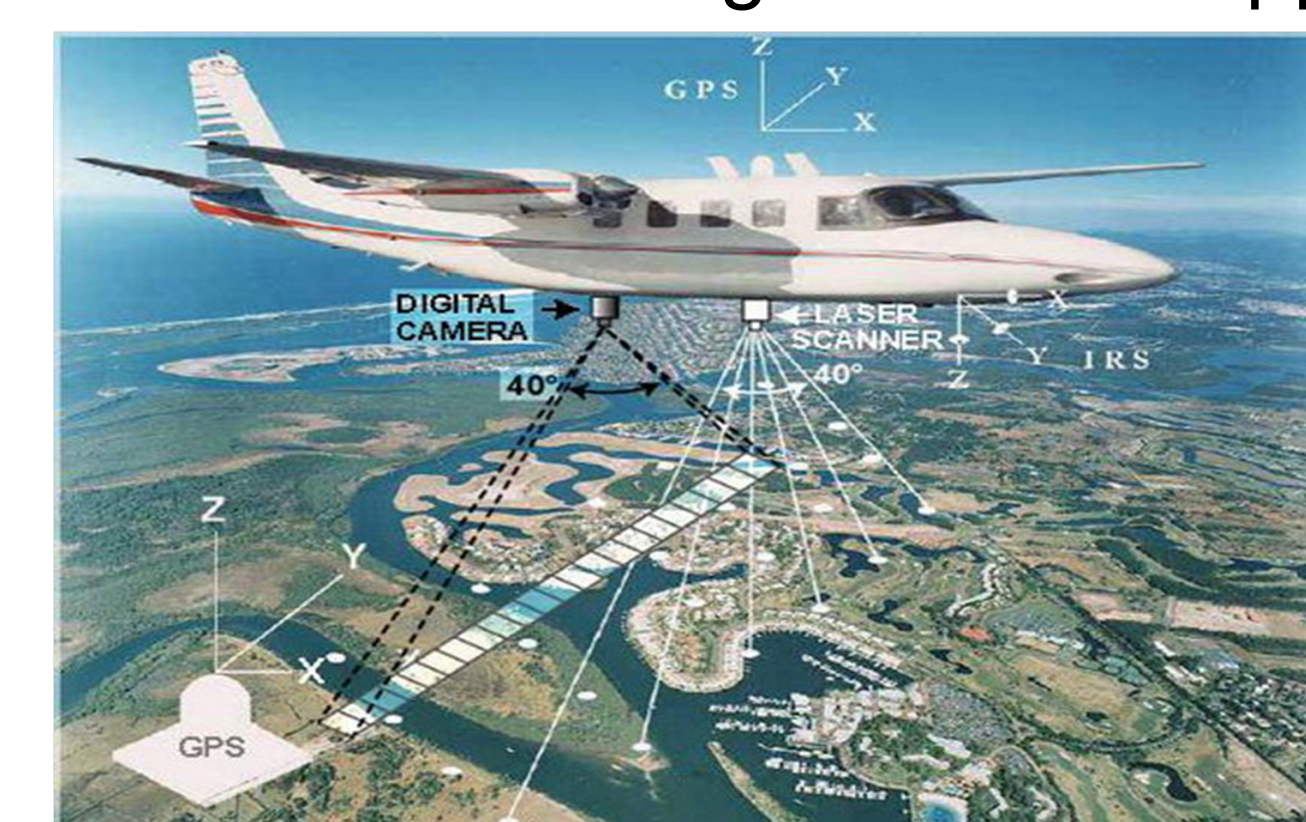
What we did:

We deployed a hyperspectral sensor on an aircraft, and imagery for a 10 by 10 km² study area in central Kenya was captured, while flowering plants were also tagged in the field.

Pictures from the airborne flying campaign conducted in February 2013 and in January 2014



Illustration showing airborne mapping



Results:

- We determined the flowering intensity for each picture element (pixel) in the airborne hyperspectral imagery.
- ‘Raw’ image hyperspectral data for a sub-section of the study area.
- Mapping result showing the distribution and abundance of flowering plants in the landscape for the two image acquisition periods. The same image sub-set as in B is shown.



Ipomoea kituiensis (1), and *Acacia tortilis* (2), could be mapped with high accuracy. *Acacia nilotica* (3) was mapped with lower accuracy.

