Integration of UAV data and DRM/development
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What platform for data collection?

- Field survey
- UAV survey
- Manned aircraft survey
- Satellite

➢ Platforms are complementary

Credit: Digital Globe

Credit: Ordnance survey

Credit: DJI

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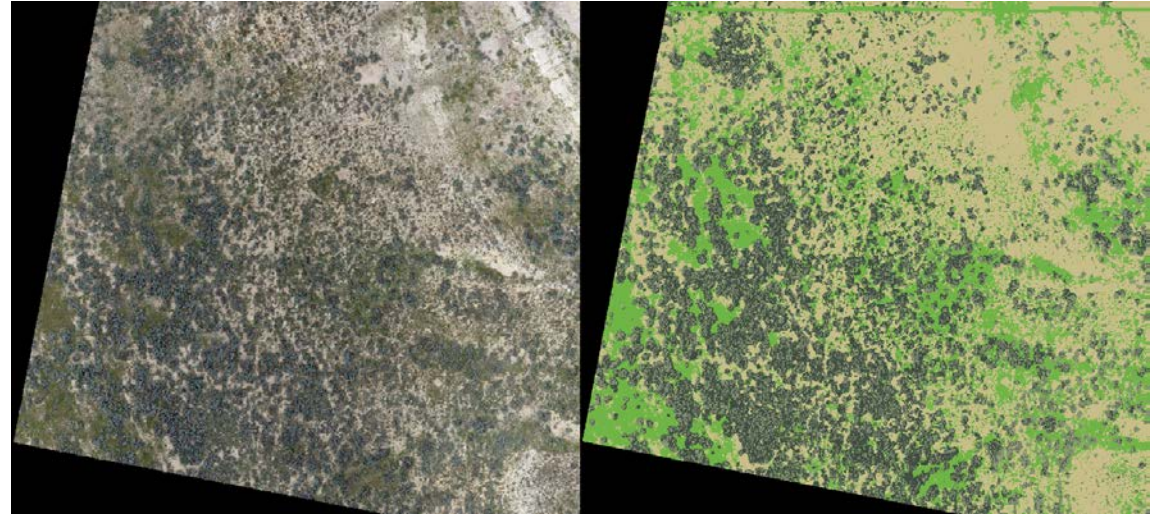|	Satellite	Manned aircraft	UAV	Field
Area covered in a day	10,000km2	750km2	25km2	1km2
Detail level	>30cm/pixel	>15cm/pixel	<10cm/pixel	NA
Cost 10km2	$$$	$$$$	$	$$$$
Cost 1 million km2	$	$$$	$$$$$$	$$$$$$$$$$
Time to capture	24h - 1week	3 days	24h	5 month
Ease of deployment	medium	medium	easy	easy
Blocked by clouds	yes	Depends on altitude	no	no
Regulatory burden	low	medium-high	high	low

RPAS considered

- Mini and micro UAVs

- What criteria to use when selecting the drones?
  - Mission constraints
  - Local capacity and system complexity
  - Reliability, maintenance and training cost
  - Presence of existing business using a specific platform

  ➤ The day of an emergency only a reliable platform will get you the data

Credit: UAV factory

Credit: DJI

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Type of use in DRM/development

- Baseline mapping
  - Crop productivity
  - Critical infrastructures
  - Risk zones
- Post-disaster assessment
  - Change detection
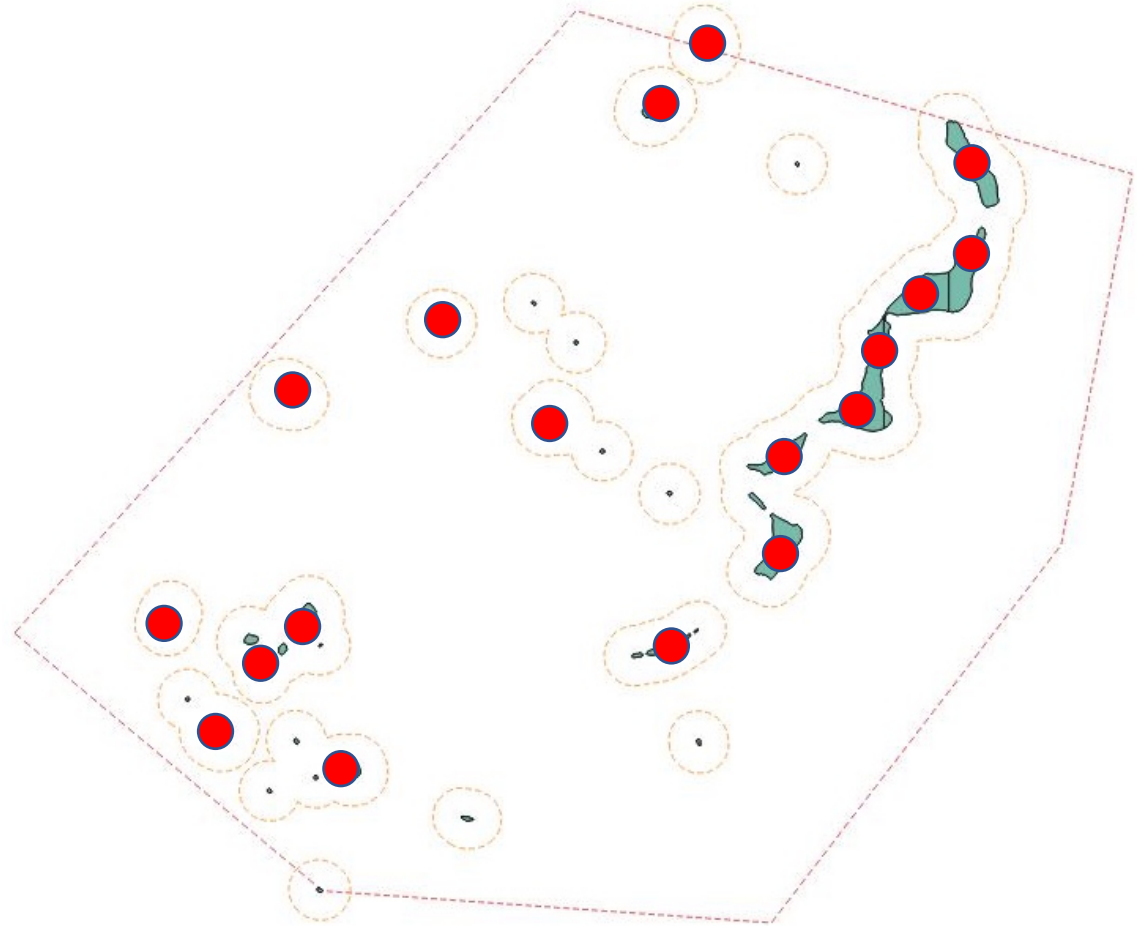 - Infrastructure inventory
  - Food security

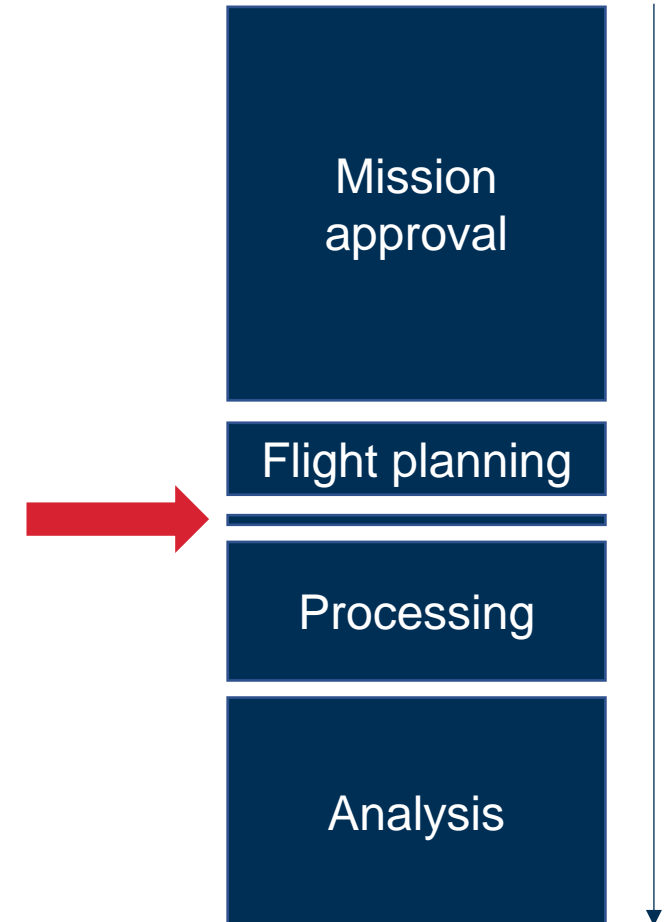Credit: Yale University, Cielmap

Credit: MICS, Cielmap

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Typhoon scenario

- ~200 km^2
- 5km range
- 4km2 per day per zone
- 9.3cm/pixel @ 1000ft

- ➢22 Multirotors
- ➢44GB of data

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The use of UAVs, a logistical challenge

- Clearance and approvals
- Mission planning
  - Best location, flight height
- Operator Skills and platform reliability
  - Are operators ready for a disaster?
  - Is the equipment maintained?
- Data management
  - Processing hardware
  - Hosting platform
  - Data transmission

Mission approval

Flight planning

Processing

Analysis

Capacity building

- What governmental group should use UAV for pre/post disaster survey?
  - Land and Survey
  - Fire Department
  - Military
  - Disaster Management Unit

➢ Complexity of UAV matters in the decision
  - Training and fleet maintenance
➢ Contracting a business more cost effective

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Policy approach

➢ UAV will be better integrated if one of the three pillars is in place

I. Airspace integration
- How to get better UAV integration
- Forecast changes in policy plans?

II. Capacity
- Start small and build a culture of accountability and rewards

III. Data management
- Fast transmission of data

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- Use a reliable and proven platform
- Training and funding
- Agreement with CAA and procedures for disaster situations
- Data processing and data transmission capabilities that match the amount of data generated during a typical event