

Aerial Photography in Accident Investigation

Presented by: Mr Ng Junsheng
Air Accident Investigator,
AAIB Singapore

ICAO Regional Accident Investigation Workshop
Asia and Pacific Regions
25 – 26 June, Colombo, Sri Lanka

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Scope

- **Considerations for Aerial Photography**
- **Currently available technology**
- **AAIB's Equipment**
- **Deployment Experience**
- **Factors/Issues to Consider**

Considerations for Aerial Photography

- **Aerial photograph useful for**
 - **Performing initial survey of crash site**
 - **Aids decision making on investigation planning**
 - **Locate likely hazards posed to investigators**
- **UAV reduces the need for helicopters to be deployed to perform aerial photography**
- **Suitability to deploy UAV**

Currently Available Technology

- Various Unmanned Aerial Systems available



- Autonomous flight using software
- Stitching photographs to obtain full aerial view
 - Fisheye camera creates distortion
 - Errors in stitched photos

AAIB's Equipment

➤ 2 platforms

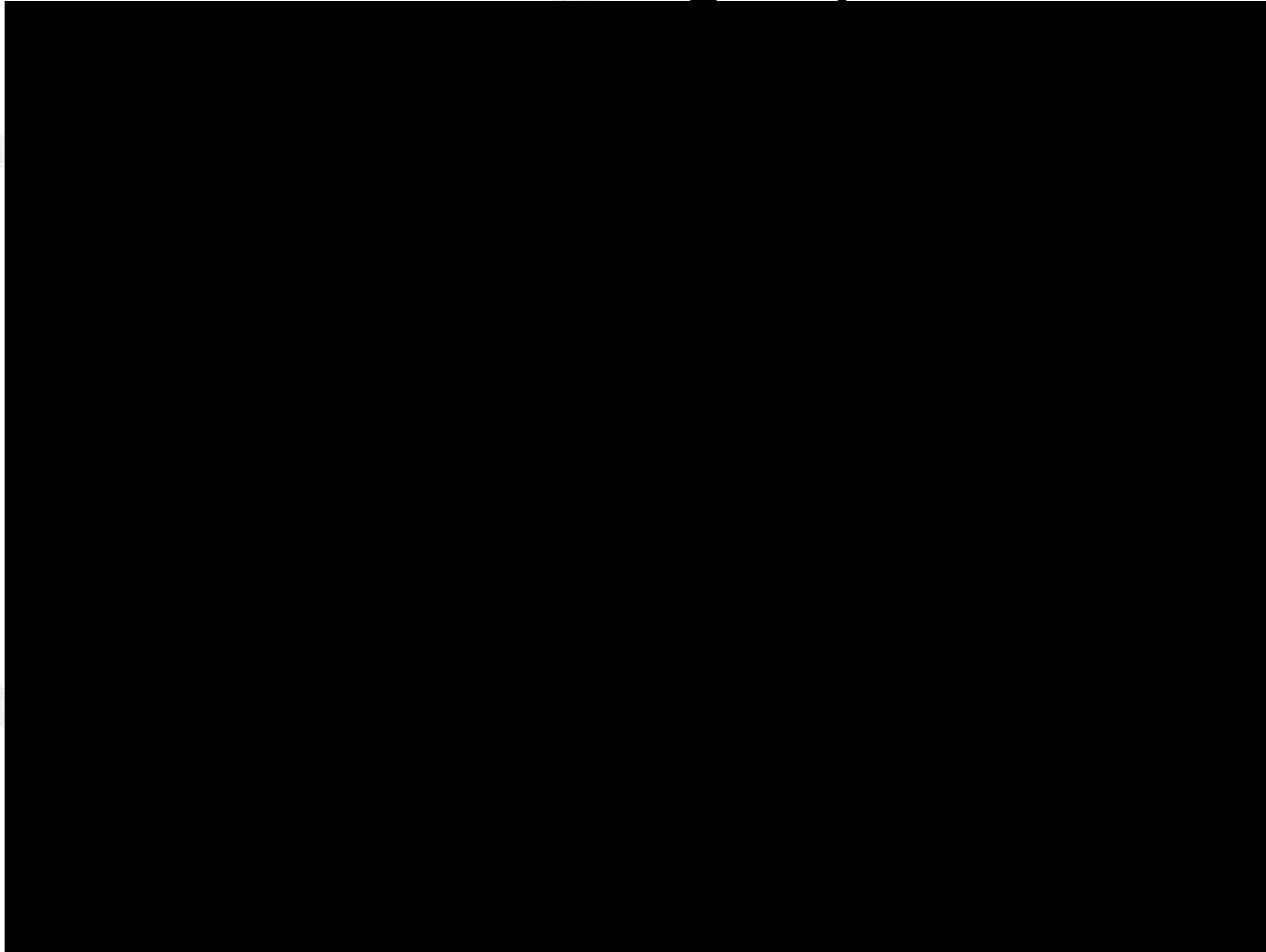


➤ Differences:

- Maximum wind operating condition
- Amount of manual control allowed
- Levels of redundancy available
- Ability to customise UAS

AAIB's Equipment

- Video of DJI customised flight operation



Video courtesy of DJI

AAIB's Equipment

- Autonomous flight using software
- Photo stitching is achieved using commercially available software
- Generated image can be mapped on Google Earth
- AAIB exploring 3D model creation using aerial images



Factors to Consider

➤ **Common problems faced with UAV operation includes:**

- **Crashes**
 - **Metallic structures causes GPS signal reflection**
 - **Poorly assembled/maintained UAV**
- **Wifi interference**
 - **GoPro camera or other devices on 2.4Ghz interferes with command signal sent from ground controller**
- **Augmented flight handling creates false sense of competency**

Factors to Consider

- **Challenges to transport equipment:**
 - **Li-Po battery**
 - **Restrictions on carriage of Li-Po battery**
 - **Limited capacity & limited quantity**
 - **Reduced flight time**
 - **Bulky and heavy when packed**
- **Insurance for 3rd party damage liability**
- **Training of UAV operator, in particular fully manual flight**

Conclusion

- **UAVs are commonly available and reasonably priced**
- **Can be operated autonomously without much flying experience**
- **Useful equipment but be aware of pitfalls**

Thank You