CHICAGO -
an Airborne Observation System for Security Applications

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DLR Antares H2:
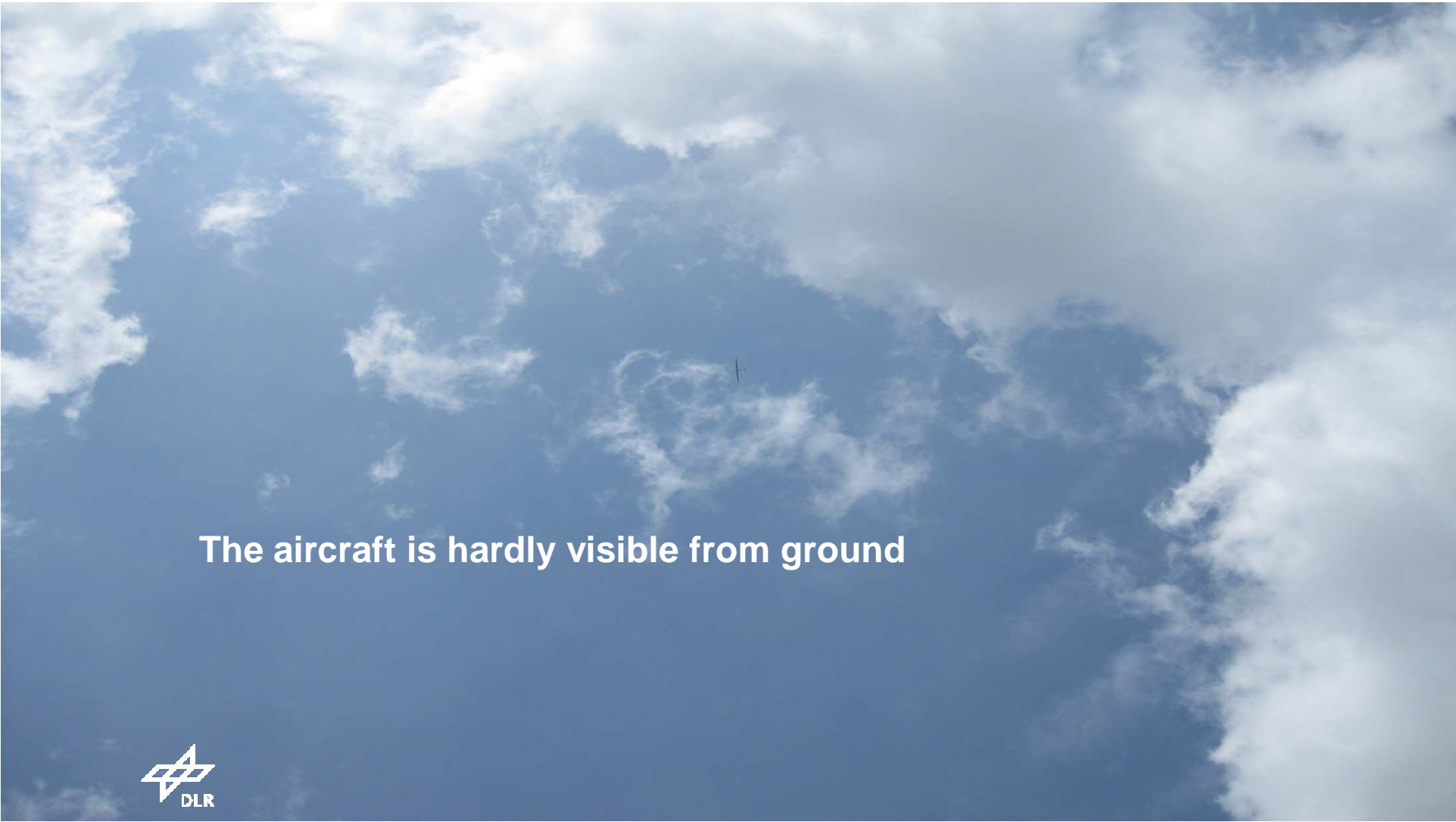## A Platform for Non-Obstructive and Persistent Monitoring

- Glider from Lange Aviation

- Hardly visible from ground

- Low noise emission due to electric propulsion

- Batteries are upgraded with fuel cells for long endurance

Copyright 2008 Lange Aviation GmbH

DLR Antares H2:
A Platform for Non-Obstructive and Persistent Monitoring

- Contour-flight and circling possible

- Low cost of aircraft and payload

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The aircraft is hardly visible from ground

Digitally zoomed image

Antares H2 and CHICAGO Project Team

DLR Antares H2 Hydrogen Tank and Payload in Wing POD
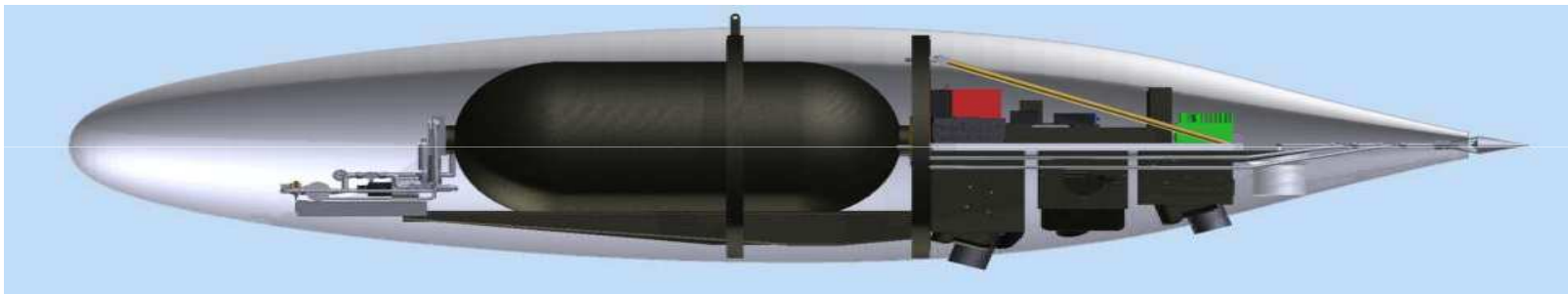
Bottom View Of The CHICAGO Payload Support Structure:
(1) rear view camera, (2) side view camera, (3) front view camera

3x Canon EOS 1Ds Mk III with Zeiss lenses

Top View Of the CHICAGO Payload System

(1) on-board computer
(2) & (3) inertial navigation system
(4) & (5) microwave data link
(6) UHF modem
(7) GPS antenna
(8) microwave antenna
(beneath GPS)

(not visible) three cameras below support structure
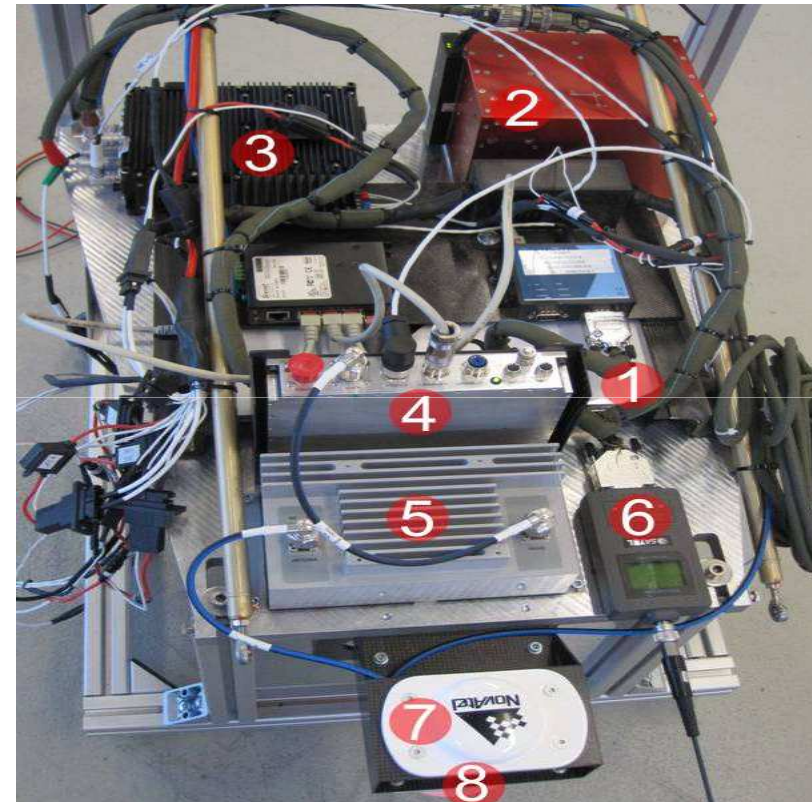
Applications

- Observation of mass events
- Crowd monitoring
- Observation of security hot spots
- Guard for high value transports
- Boarder safety
- Traffic monitoring
- Hidden tracking of cars

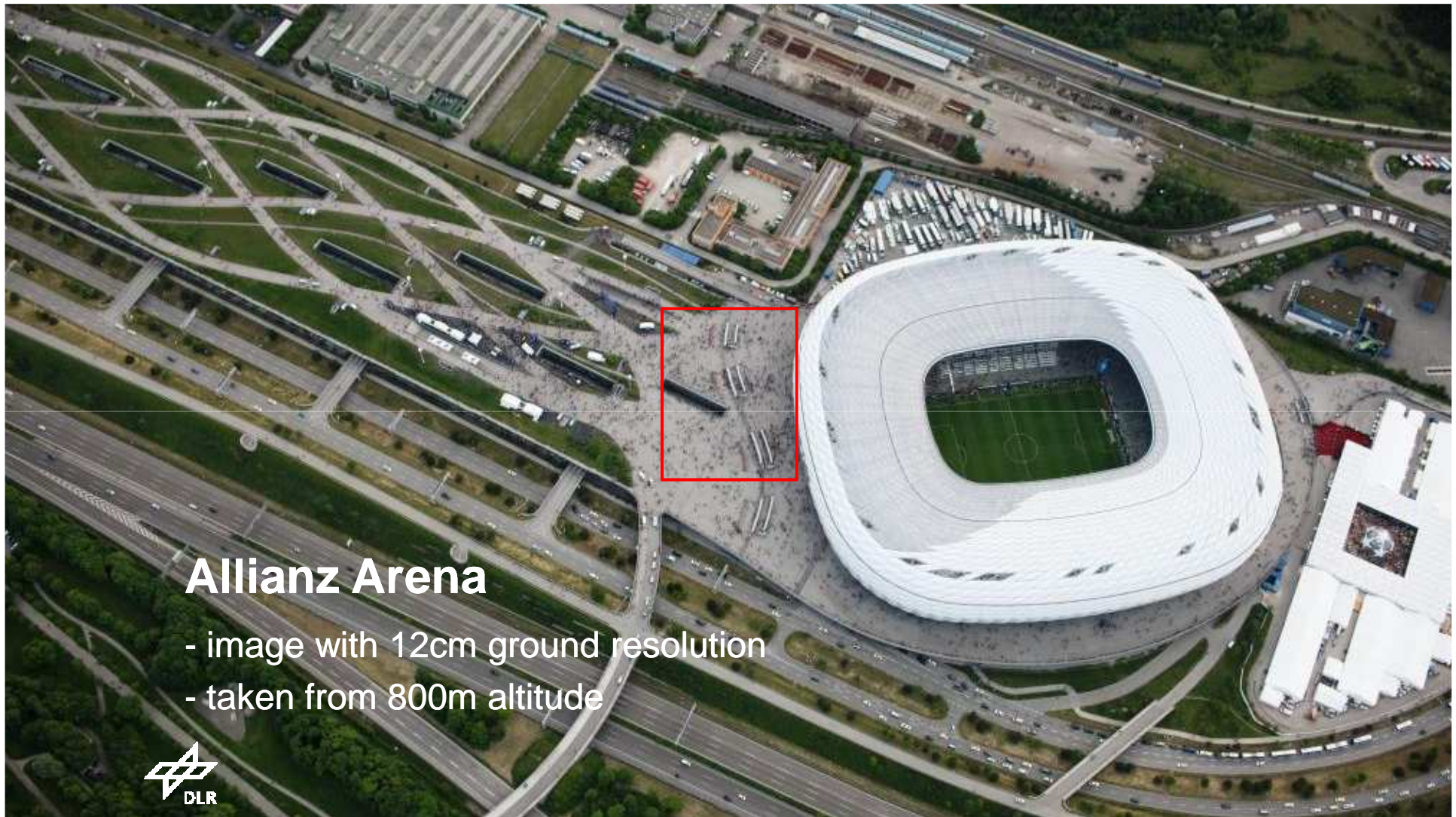# Demonstration Flight At The Champions-League Final May 19th 2012

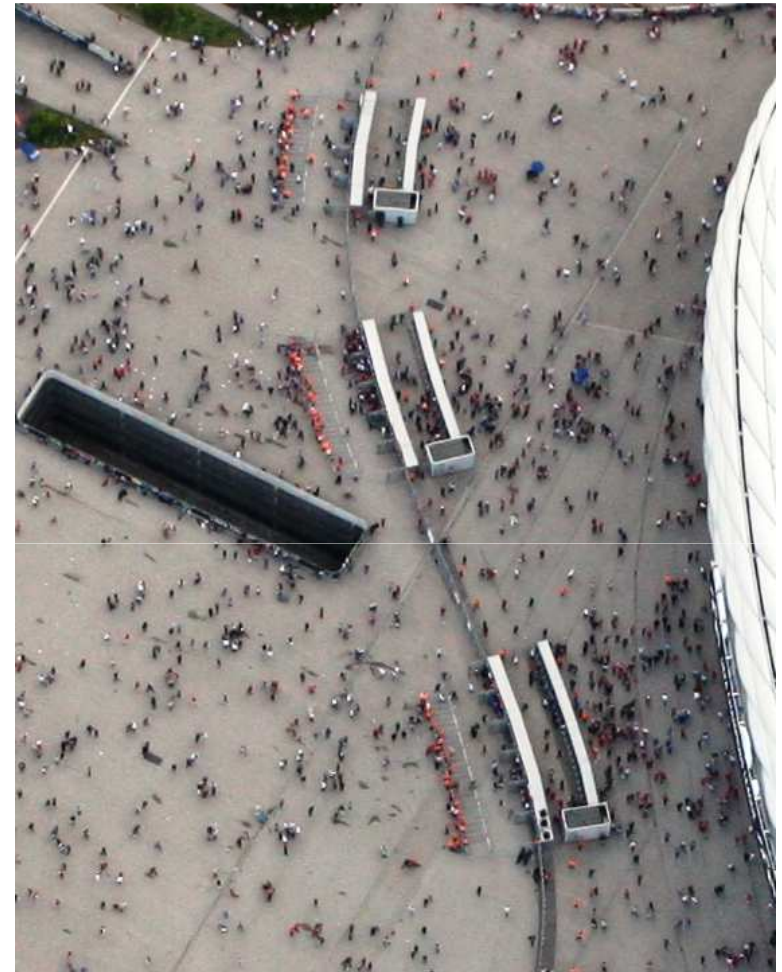
Checking the aircraft

and Payload

Allianz Arena

- image with 12cm ground resolution
- taken from 800m altitude

Detail from larger airborne image:Visitor entrances to the Allianz Arena

Result: no crowds at the time of the snapshot,

19h05, May 19th 2012

**Crowds In Front of the
Entrances of the Allianz Arena:**

Airborne image taken from 1.000m
altitude

at Oct. 24th 2009

Example Of Crowd Density Estimation

- Example from another date and event

- Automatic detection of critical people density is possible

- Produced in collaboration between DLR and the Technical University of Munich and Karlsruhe Institute of Technology

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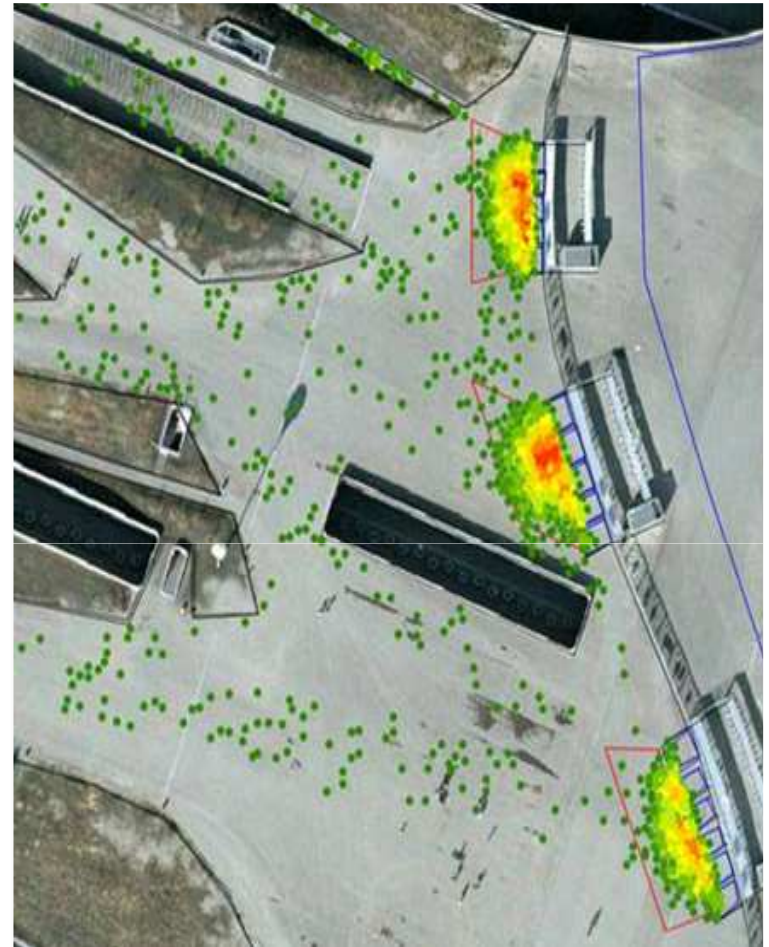
Conclusion

➢ DLR has developed an airborne platform which can be used for various security applications

➢ We would like to contribute to a project in one of the following themes:

- 1.6-2 Protection of crowds
- 1.6-3 Surveillance of wide zones
- 4.1-1 Aftermath crisis management
- 3. Intelligent surveillance and border safety
- 5.3-2 Maritime surveillance systems

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