

# IGI

## History – Present - Future

Albrecht Grimm

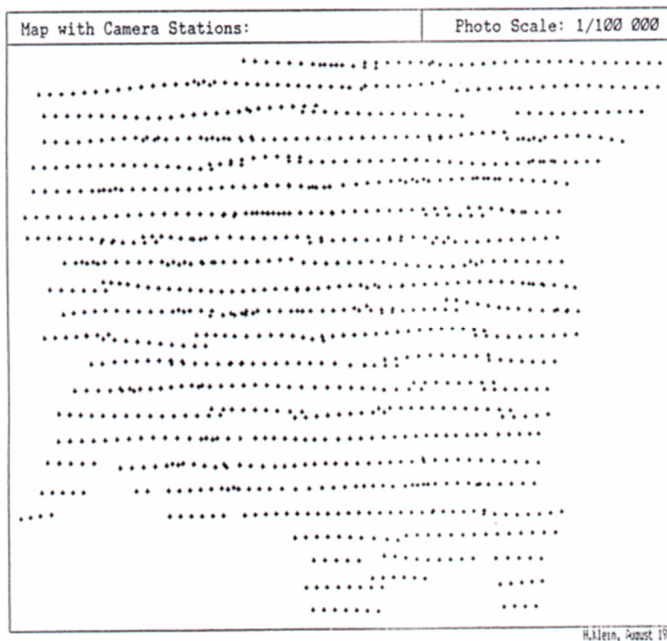
9. September 2013

## IGI mbH

- 35 years of IGI, founded 1978
- More than 400 customers in 60 different countries
- World-wide first introduction of a flight guidance system
- World-wide technical support with 20 partner firms



## History: Photo Index before CPNS/CCNS



Aerial survey with navigation telescope Kalimantan (Borneo), Indonesia, 1988

## History: ITC Survey Aircraft





## History: CPNS

### Computer-controlled Photo Navigation System



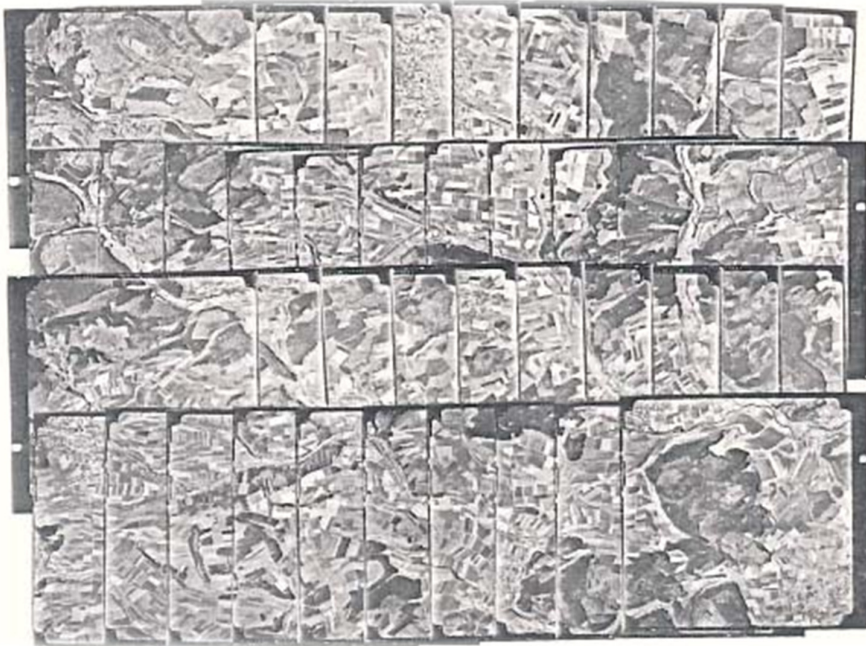
Installation in Piper Navajo, 1982

## History: CPNS

### Computer-controlled Photo Navigation System

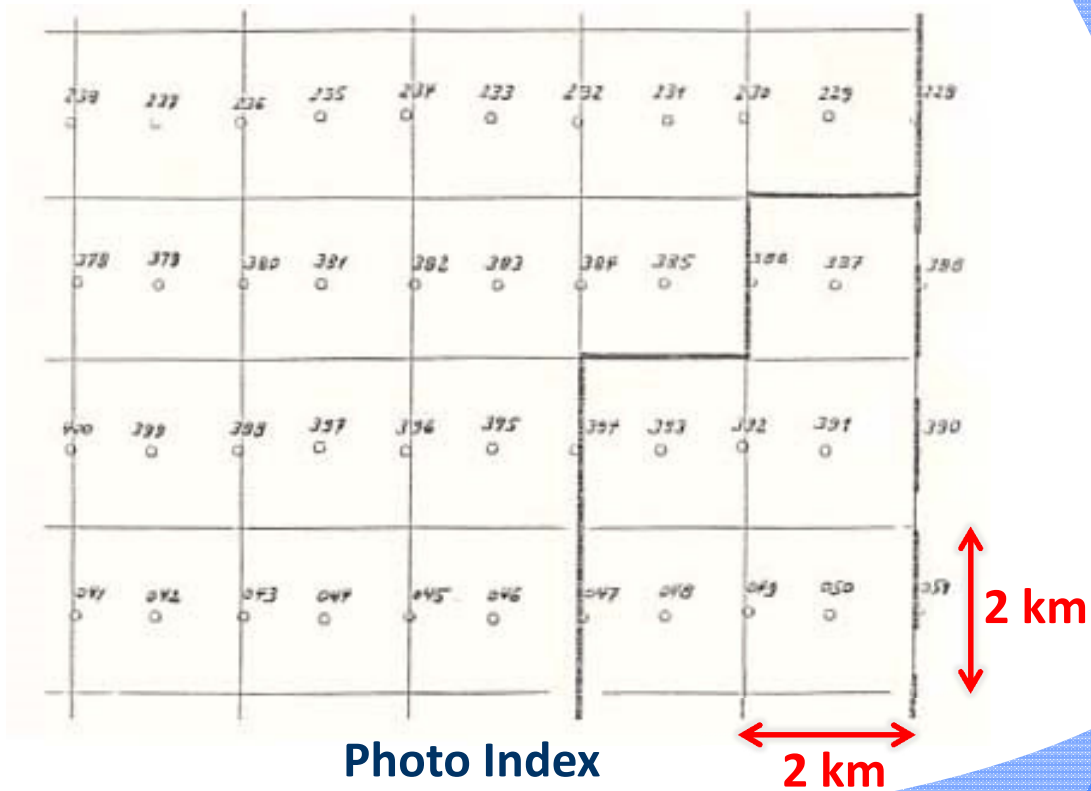


# History: CPNS – First Production Flight



Hochsauerlandkreis, Germany 1983

# History: CPNS – First Production Flight



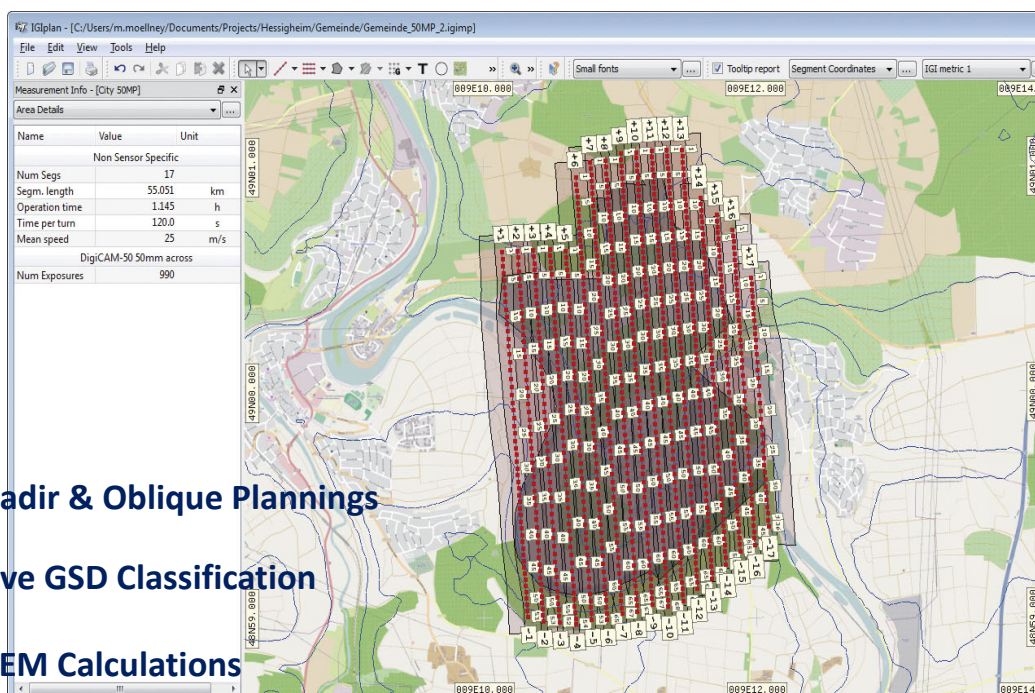


# Development of Mission Planning Software since 1982

- **WWMP** – World-Wide Mission Planning Introduced in 1982
- **WinMP** – Windows based Mission Planning Introduced 2000
- **IGIplan** – State-of-the-art Mission Planning Software by IGI Introduced in 2008

More than 600 world-wide integrated coordinate systems.

## Present: Mission Planning with **IGIplan** Example project Hessigheim, Germany with **DigiCAM**

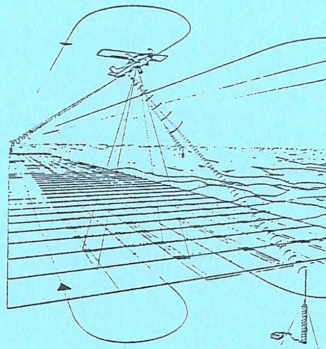


- Nadir & Oblique Plannings
- Live GSD Classification
- DEM Calculations
- Customized Sensor Configurations

# History: AEROcontrol replacing Gound Control



## INVITATION



MAPPING ORGANISATION  
CONTRACTORS FOR  
AERIAL PHOTOGRAPHY,  
REMOTE SENSING AND  
GEOPHYSICS  
SPECIALISTS FOR  
ENVIRONMENTAL CONTROL  
AND MARITIME  
SURVEILLANCE  
FLIGHT OR AIRWAY  
INSPECTION AGENCIES  
SURVEY AIRCRAFT  
MANUFACTURERS AND  
SUPPLIERS

## WORKSHOP

- ⇒ COMPUTER-CONTROLLED SURVEY NAVIGATION
- ⇒ COLLECTION AND USE OF AUXILIARY DATA FOR AEROTRIANGULATION

10<sup>TH</sup> AND 11<sup>TH</sup> OF JUNE 1983

SIEGERLAND AIRPORT  
5909 BURBACH/LIPPE  
W.-GERMANY

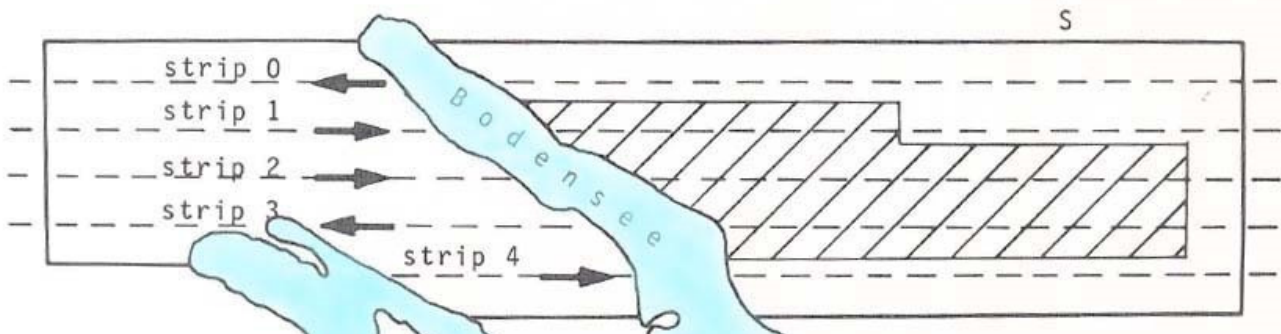
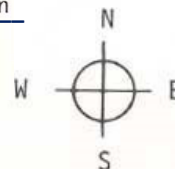
# History: AEROcontrol replacing Gound Control



USE AND BENEFITS OF X, Y,  $\Delta Z$  AUXILIARY DATA FOR AERIAL TRIANGULATION - RESULTS OF THE TEST MISSION "BODENSEE" 1982  
by F. Ackermann, Stuttgart

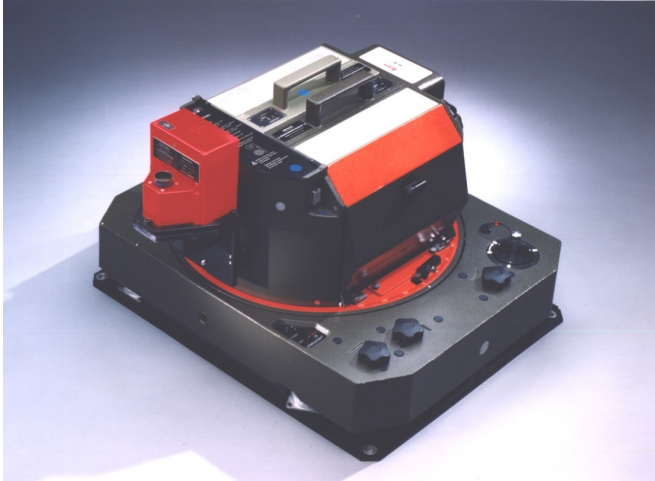
The developers of computer controlled navigation systems have, up to now, concentrated entirely on the flight navigation aspects of the systems and on the subsequent benefits derived from regular photo coverage.

There is a second aspect, however, which seems not to have been pursued so far. It refers to the fact that air survey navigation data are, or can be converted to, camera orientation data which could be used in the subsequent data processing in conjunction with photogrammetric image evaluation procedures.



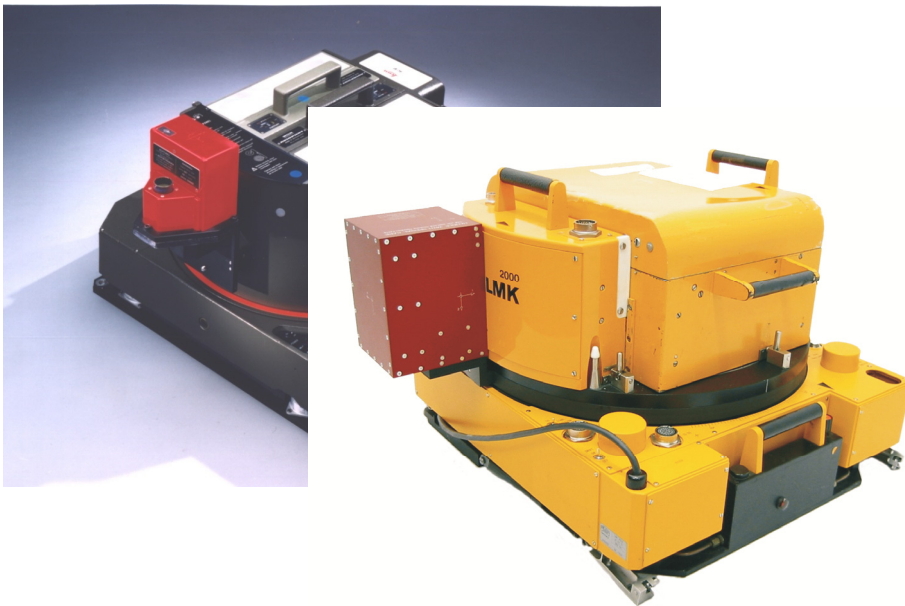


## History: GNSS/IMU - Technology



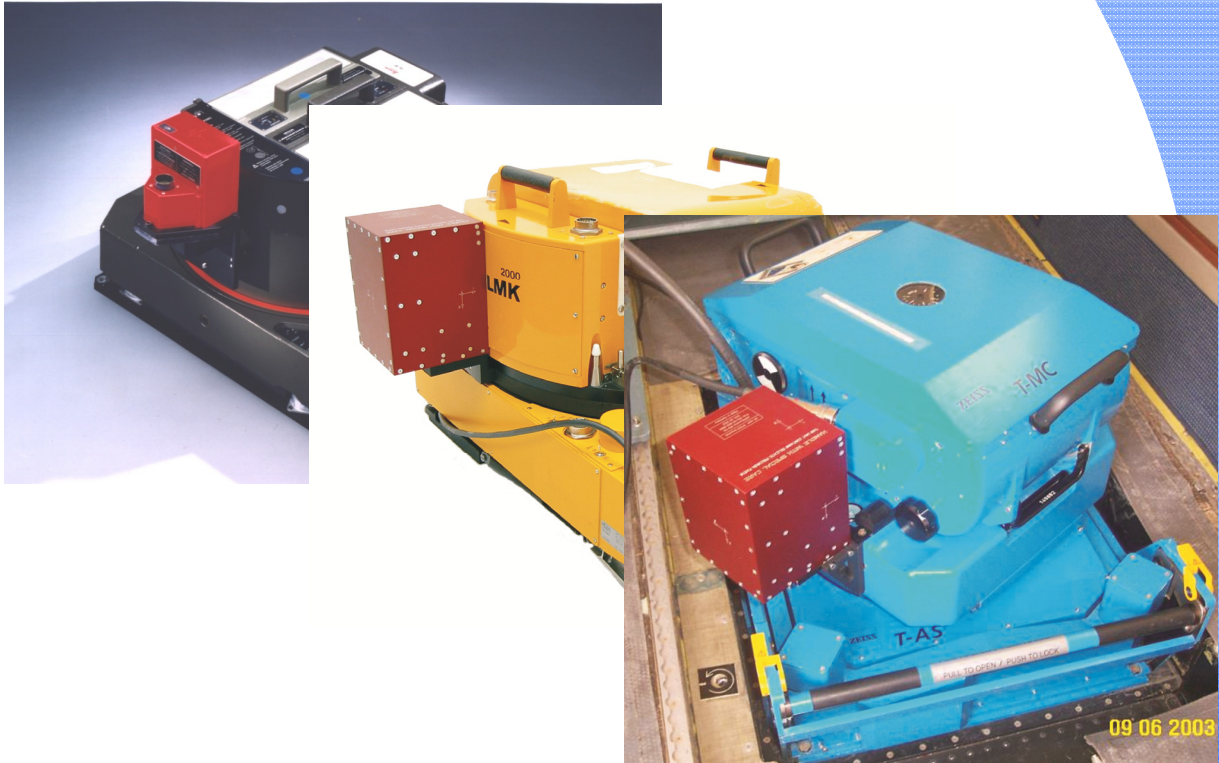
**RC30 with IMU-IIb**

## History: GNSS/IMU - Technology



**LMK-2000 with IMU-IIId**

# History: GNSS/IMU - Technology



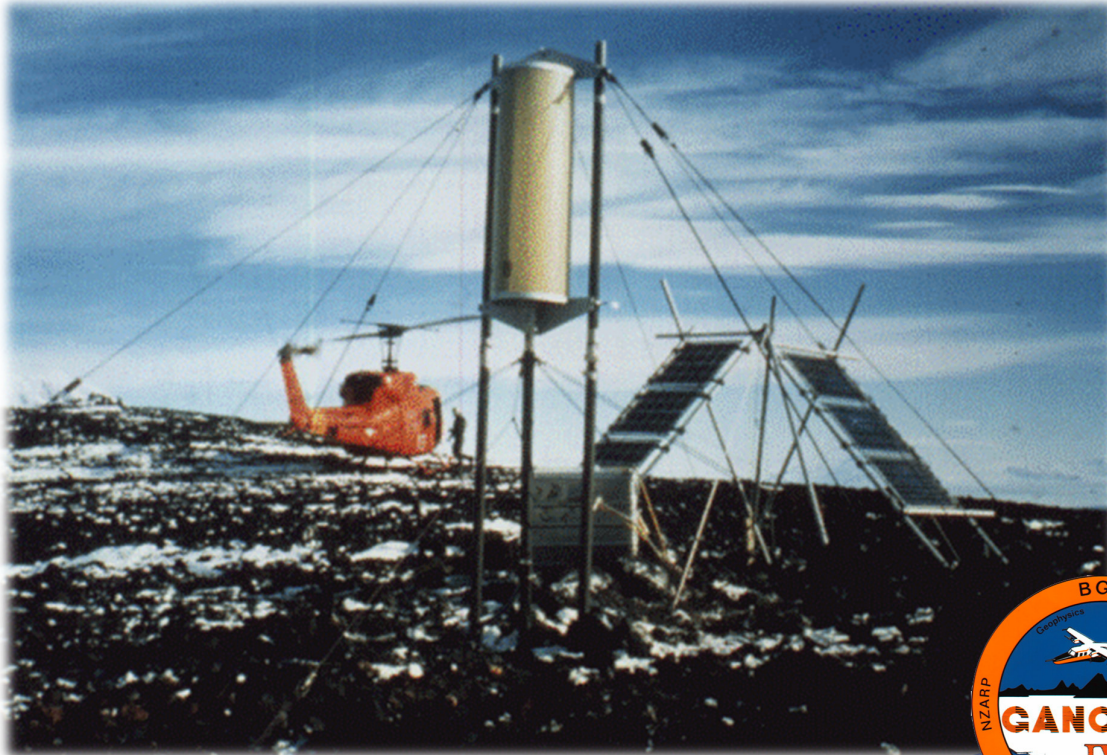
RMK-Top with IMU-11d

# History: Antarktis, Polar 2 & Polar 3 1984/85 Self installed PDME network

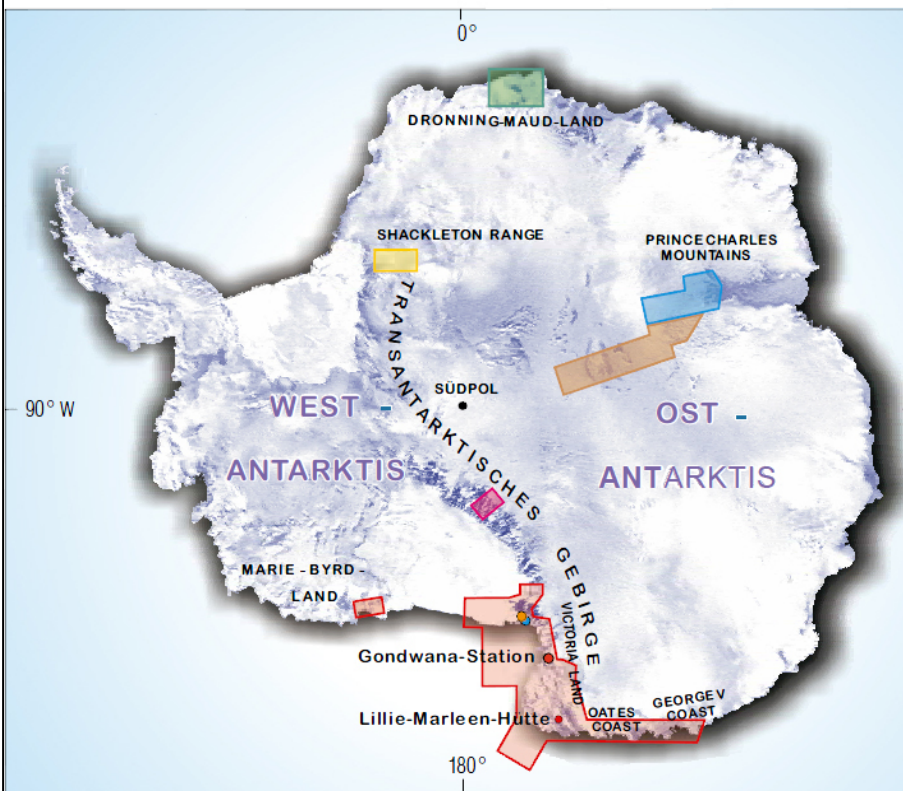




# History: Trident station powered by solar energy at Mount Erebus



# History: Antarktis, Polar 2 & Polar 3 1984/85



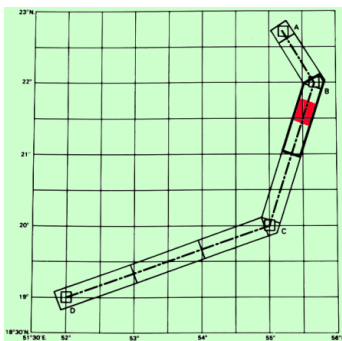
- GANOVEX I – IX, ASAP, GITARA, TAMARA
- GEISHA, EUROSHACK
- GEOMAUD / QueenMET
- PCMEGA
- REVEAL / CTAM
- AGAP / GIGAGAP

- ANDRILL
- Cape-Roberts-Bohrung





# History: Gain in precision



## Demarcation of the border between Saudi Arabia and Oman "BOSOSA"





# Sensor Management of the German OS Aircraft

## KSZE, Wien & Helsinki; 1990

IGI Sensor Management:

**SMS-1,**  
Sensor Management System  
11 different Sensors

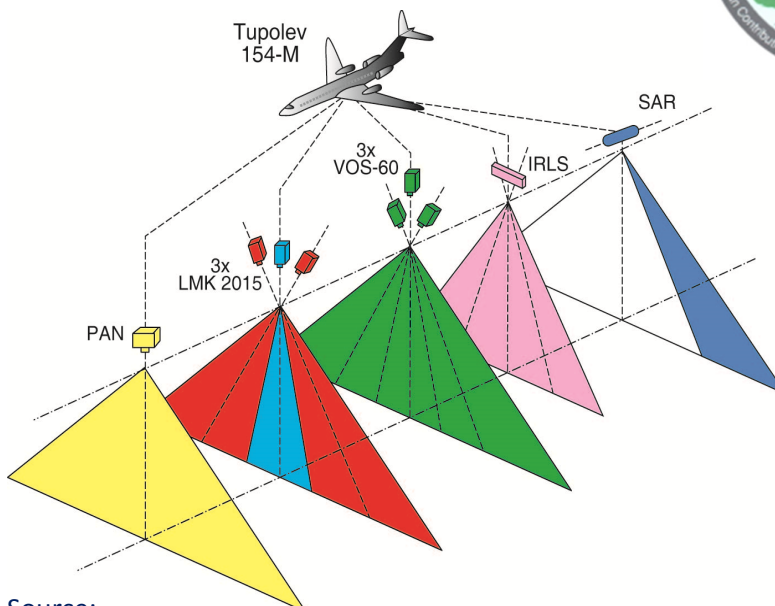
**BD/Z-84,**  
Operator Interface for  
Zenit Z-84 PAN-Camera

Germany Open Skies Aircraft: Tupolev 154-M



# History: Open Skies

## KSZE, Wien & Helsinki; 1990



IGI Sensor Management:

**SMS-1,**  
Sensor Management System  
11 different Sensors

**BD/Z-84,**  
Operator Interface for  
Zenit Z-84 PAN-Camera

Source:

[http://de.wikipedia.org/wiki/Tupolew\\_Tu-154M,\\_Deutsches\\_Open\\_Skies](http://de.wikipedia.org/wiki/Tupolew_Tu-154M,_Deutsches_Open_Skies)

# Present: CCNS-5 Connectivity



LITE M APPER®



AS-350  
CCNS-4  
AEROcontrol  
LiteMapper  
Triple DigiCAM



LITE **M**APPER®

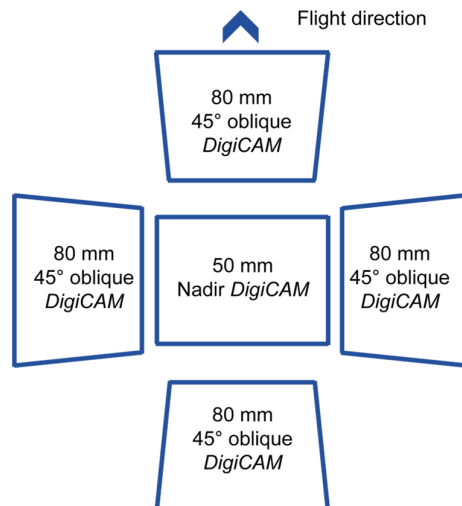
**IGI**®  
www.igi-systems.com



**Cessna 208**  
CCNS-4  
AEROcontrol  
LiteMapper  
Penta DigiCAM

## Present: Quattro DigiCAM & Penta DigiCAM

**IGI**®  
www.igi-systems.com



Suitable for  
GSM3000,  
PAV-100,80,30



# Present: Mobile Mapping

- Capable of surveying on land and on rails
- Track width 1435mm & 1520mm
- On rails: forward & backward surveying

live  
outside



# Present: Mobile Mapping

Current integration of 4 different laser scanner manufacturers

- Riegl
- Zoller + Fröhlich
- Faro
- Velodyne





## History: UAV equipped with *DigiCAM* at INTERGEO 2009



## History: Test campaign UAV type Flettner 2011/2012





# Future: New Turn-Key Solution



# Future: Cavalon Aerial Survey



live  
outside



**Airborne Laser-Scanning Configuration**



## Photogrammetry

Flight & Sensor Management: *CCNS-5*  
GNSS/IMU-System: *AEROcontrol*

Digital Camera: *DigiCAM-40/50/60*  
Stabilised Mount

## Airborne Laser-Scanning

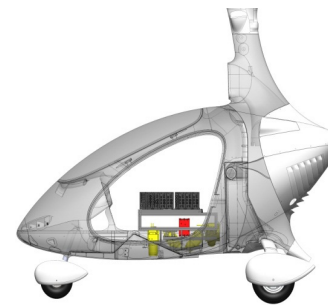
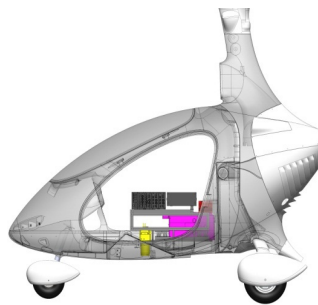
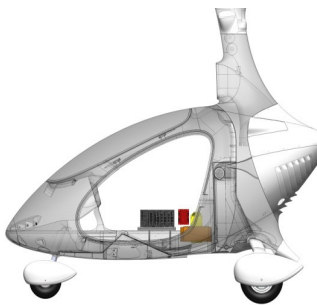
Flight & Sensor Management: *CCNS-5*  
GNSS/IMU-System: *AEROcontrol*

Digital Camera: *DigiCAM-40/50/60*  
Airborne Laser Scanner: *LiteMapper*

## 3D City Modelling

Flight & Sensor Management: *CCNS-5*  
GNSS/IMU-System: *AEROcontrol*

Digital Cameras: *DigiCAM* (1x nadir, 4x oblique)



## My future

### Life and work of Albrecht Meydenbauer 1834 - 1921

- Architect and Civil Engineer
- Photographer
- Photogrammetrist

### Meydenbauer introduced:

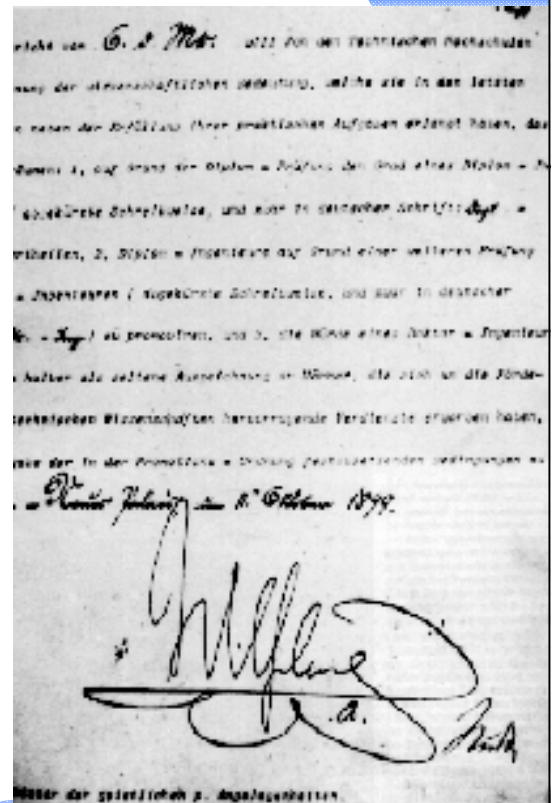
- Architectural photogrammetry
- Archive of monuments
- The term „Photogrammetry“ (1867)



**Edict of  
Emperor Wilhelm II.  
Oktober 11th, 1899  
on introducing:**

*Diplom-Ingenieur (Dipl.-Ing.)  
Doktor-Ingenieur (Dr.-Ing.)  
Doktor-Ingenieur Ehren halber (Dr.-Ing. E.h.)*

~~Diplom-Ingenieur (Dipl.-Ing.)  
Doktor-Ingenieur (Dr.-Ing.)  
Doktor-Ingenieur Ehren halber (Dr.-Ing. E.h.)~~



**My wish**

**Continuing interesting PhoWo's  
at Stuttgart University**