Agency for
Data Supply and
Efficiency

Nation-wide oblique acquisition

Capturing Denmark at an angle

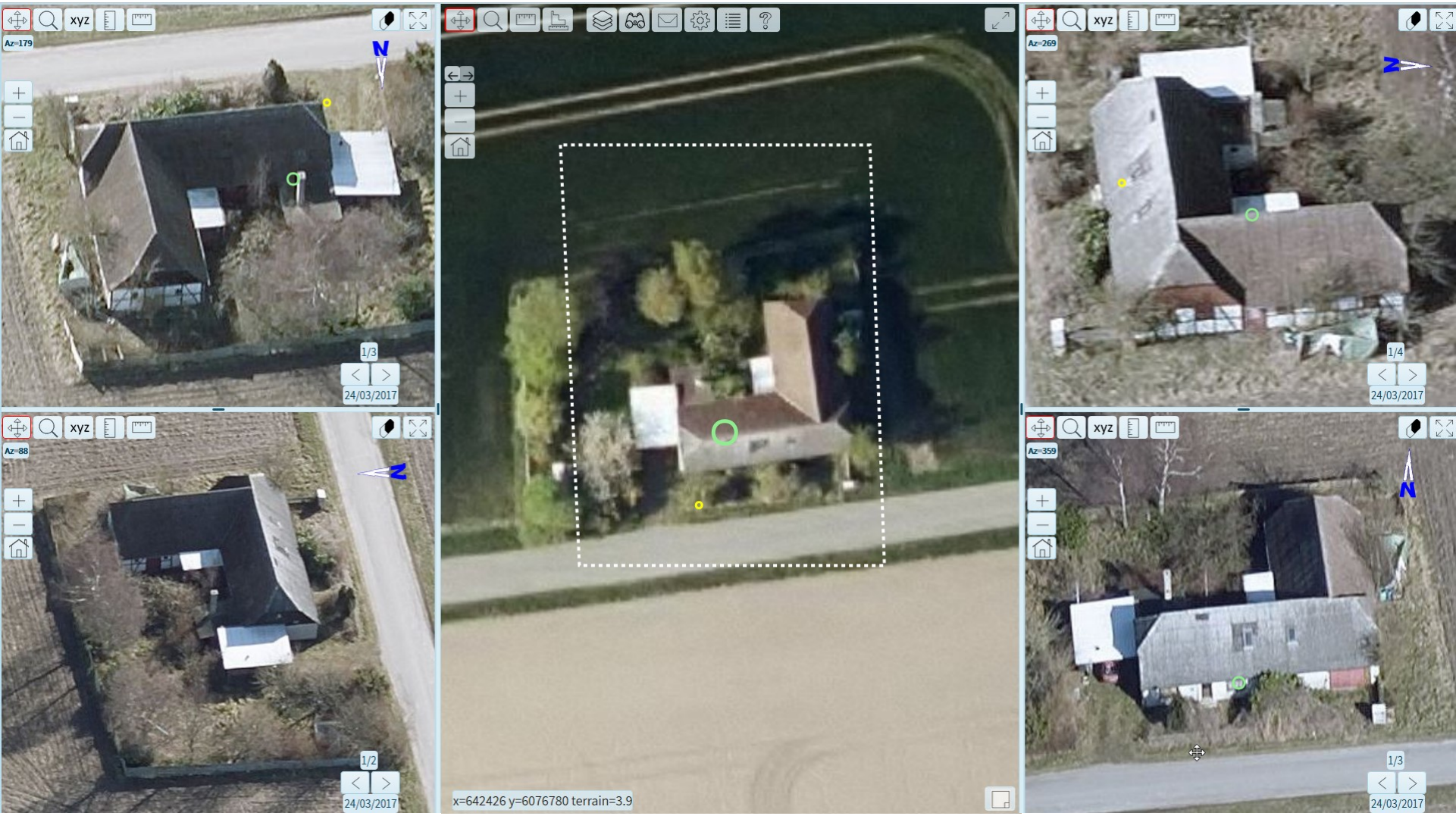
Andrew Flatman
Remote Sensing Consultant
Danish Nation Mapping Authoroty
(www.sdfe.dk)

Geographical variables

- input to a new valuation model developed by the Danish Ministry of Taxation

Assessing state of buildings

Enter oblique images



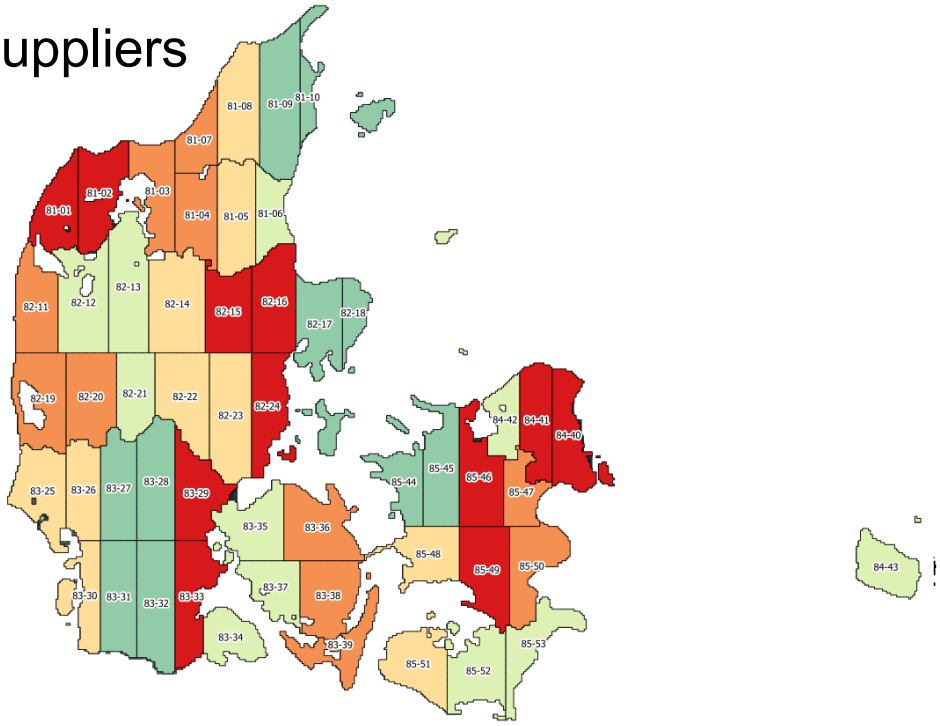
The Goal:

To map the entire country of Denmark with 10cm Oblique images in one year (2017)

Meating the Challange

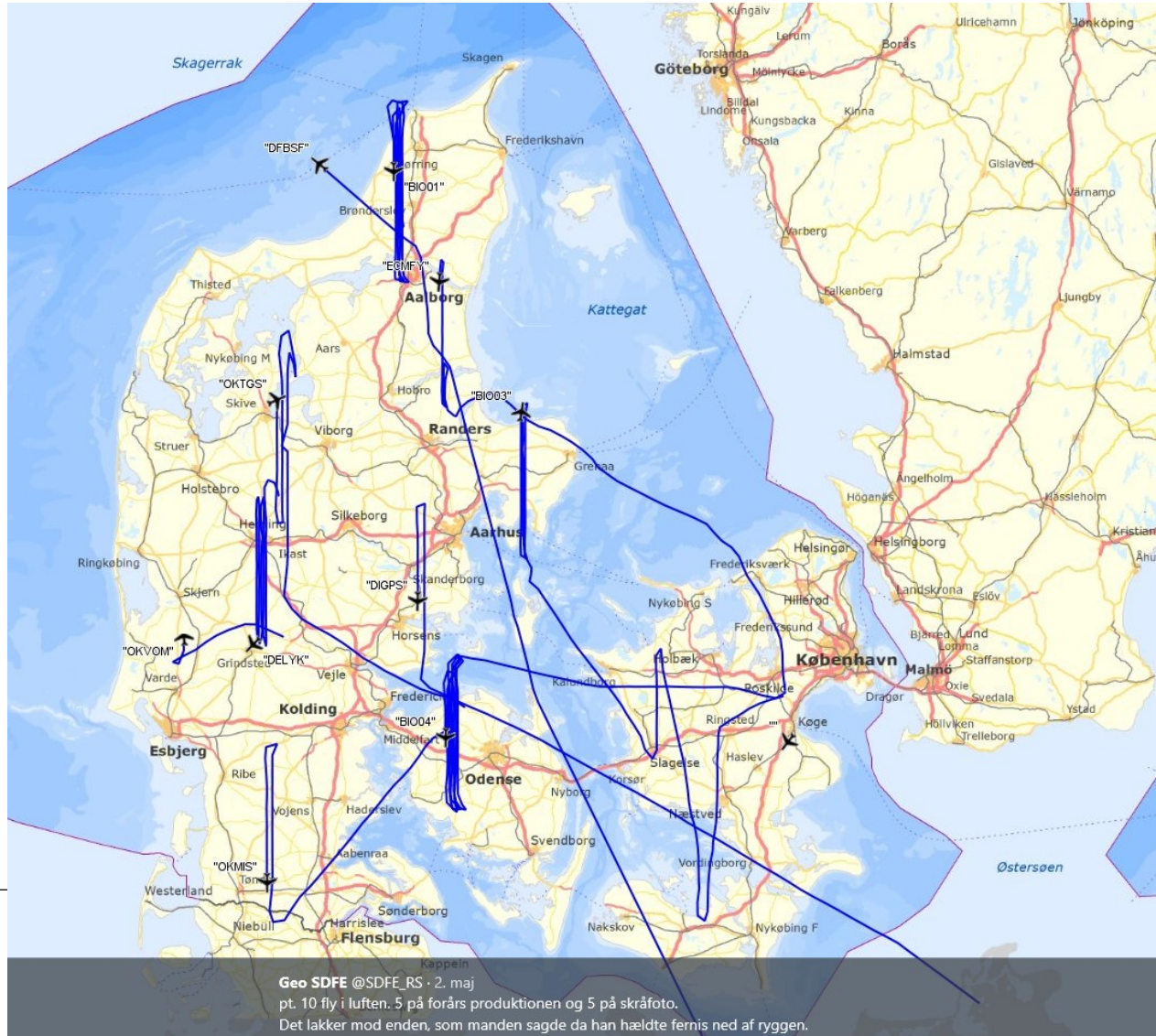
- 43.000km^2 - i.e. > 500 hours flying, > 1.300.000 images
- 56 Degree North – i.e. challenging weather

- Country slit into five lots – five suppliers
- 10-11 blocks of 10.000km2
- 20% is given as option
- Contracts can be prolonged
- Redistribution of 20%
- Less strict on weather



Managing aquisition

- Penalty on capacity
- Tracking aircraft is a necessity!



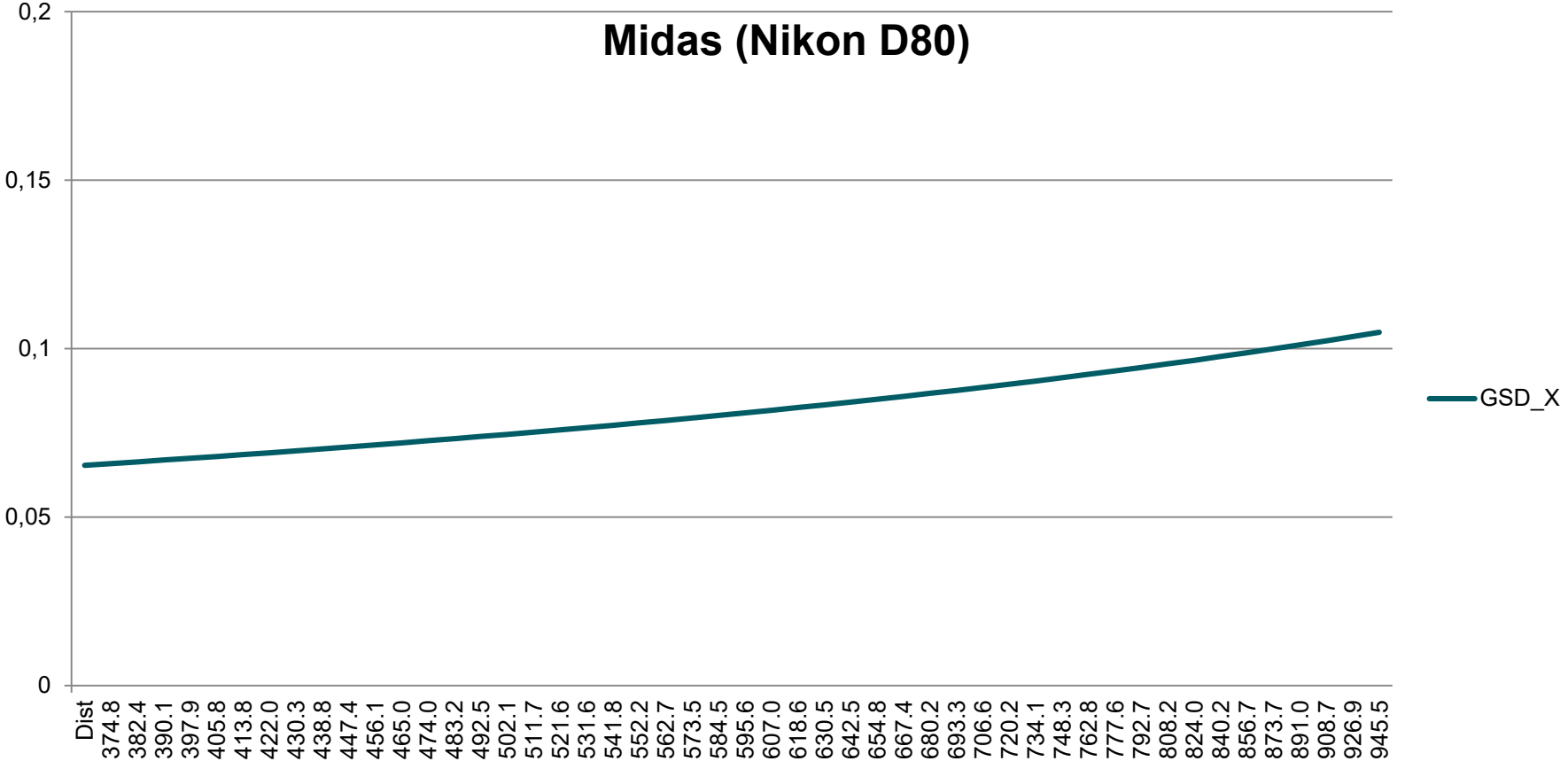
Managing weather

How to specify ? - GSD

10 cm GSDx

5 cm GSDx

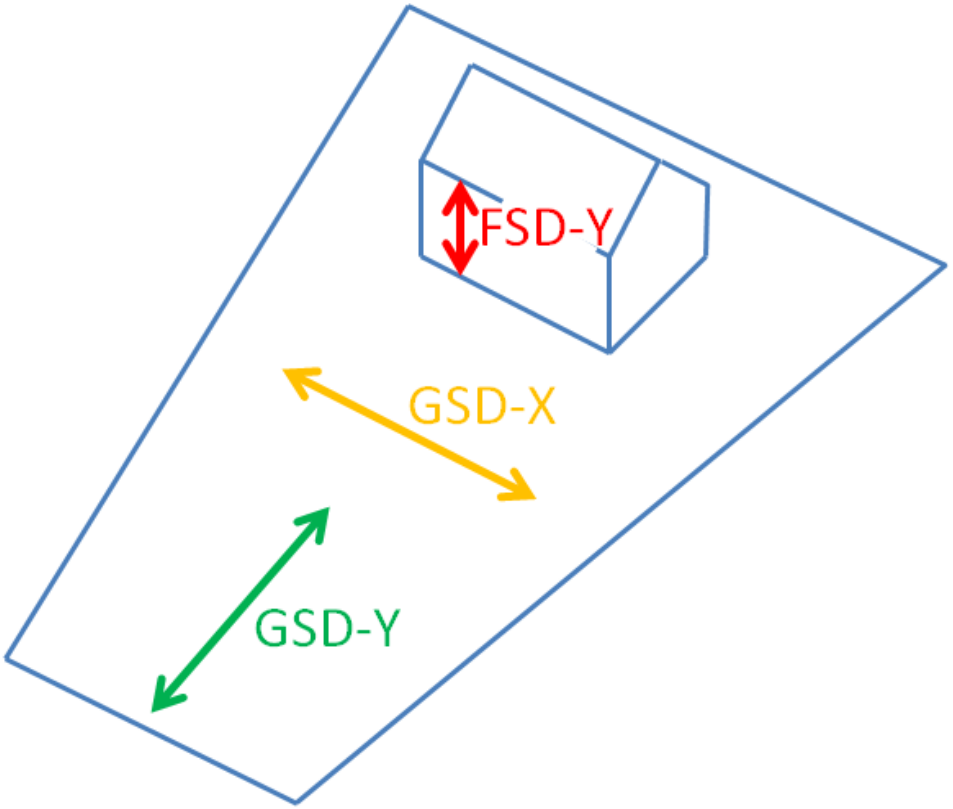
How to specify ? - GSD



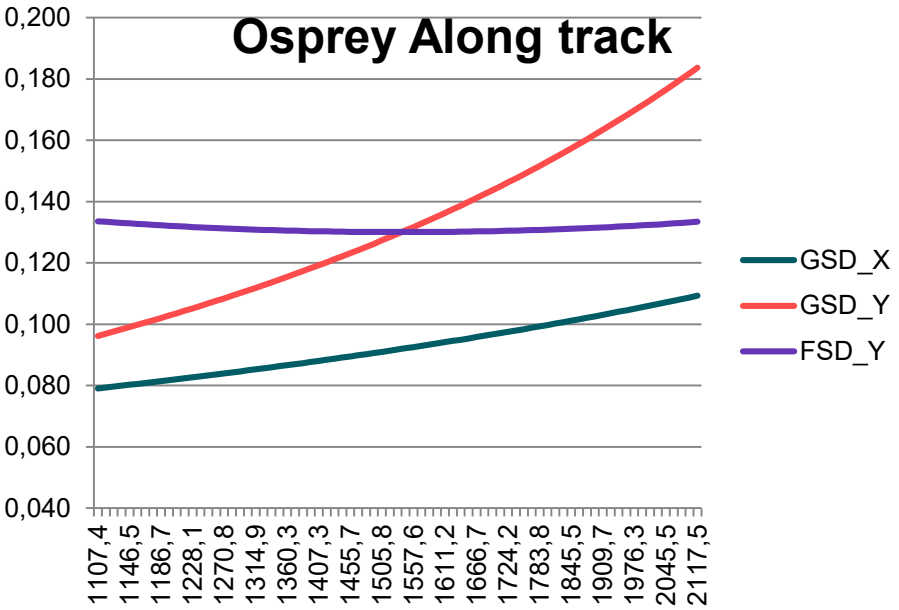
How to specify ? - GSD

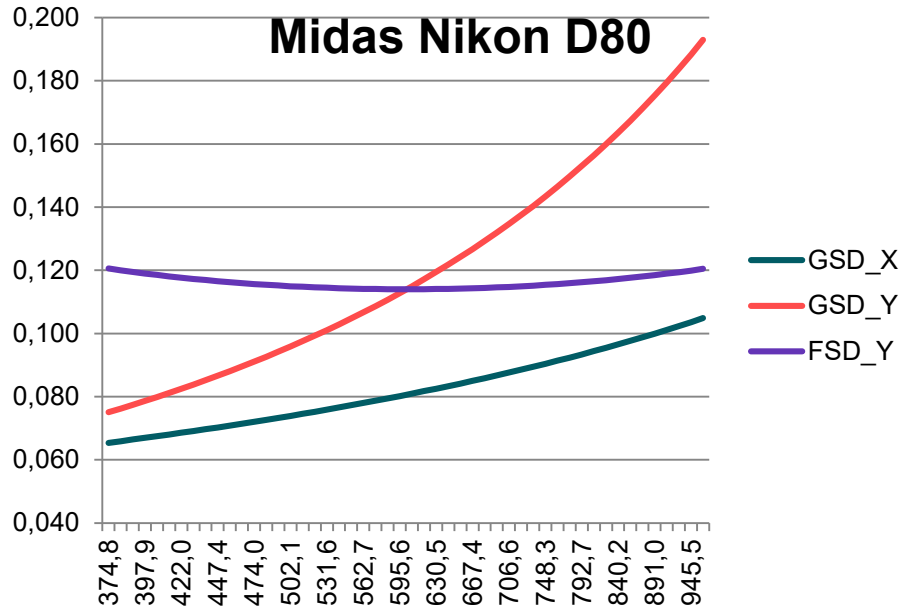
- Ration between GSD in nadir and oblique is not the same

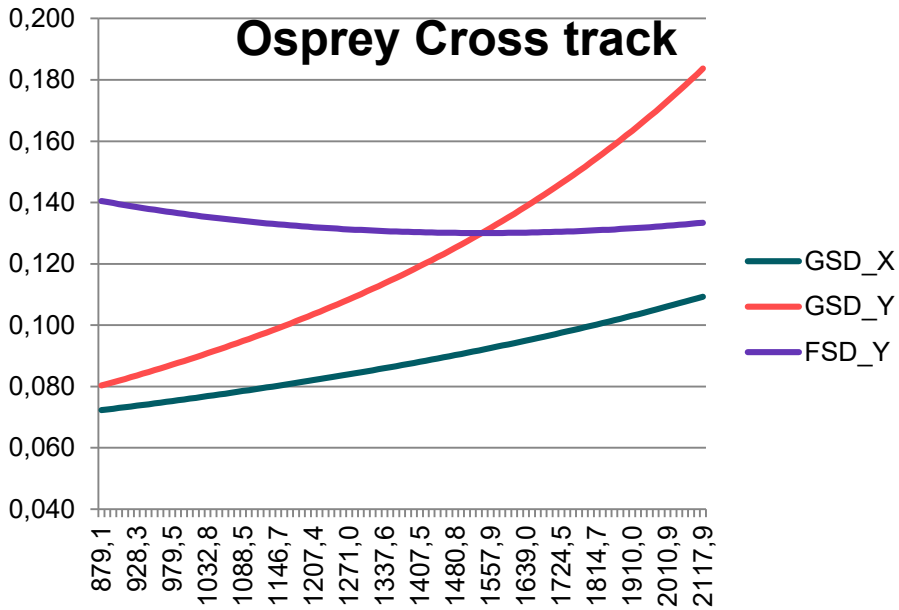
- GSD??
  - GSD-X
  - GSD-Y
  - $F_{acade}SD$

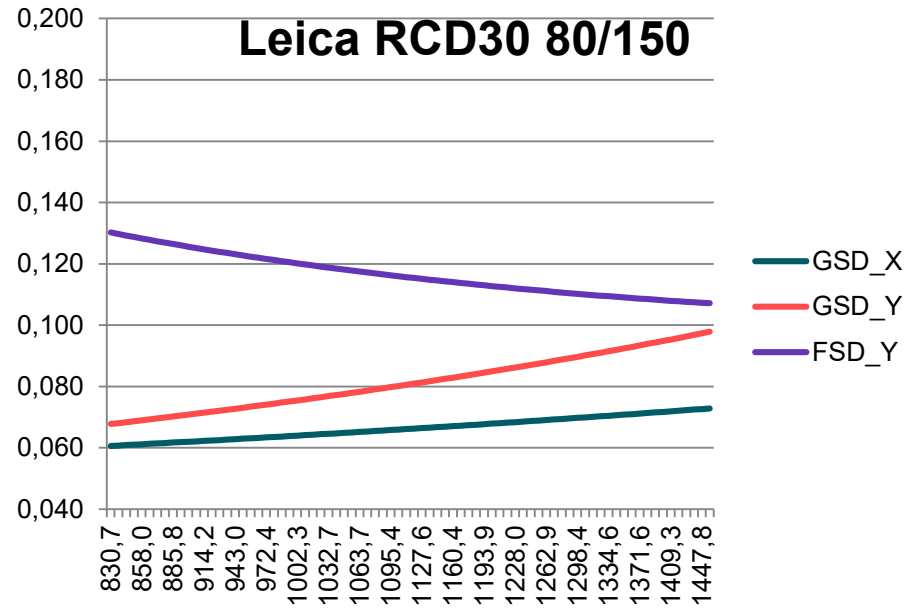


How to specify ? – GSD

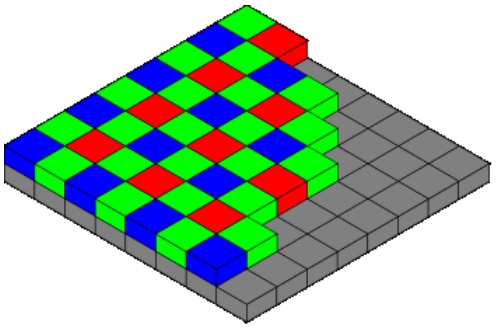








How to specify ? - GSD



- Image quality
  - Bayer pattern
    - GSD is not the actual “GSD”
    - How to handle?
  - Blurriness
    - Intentionally / Privacy?

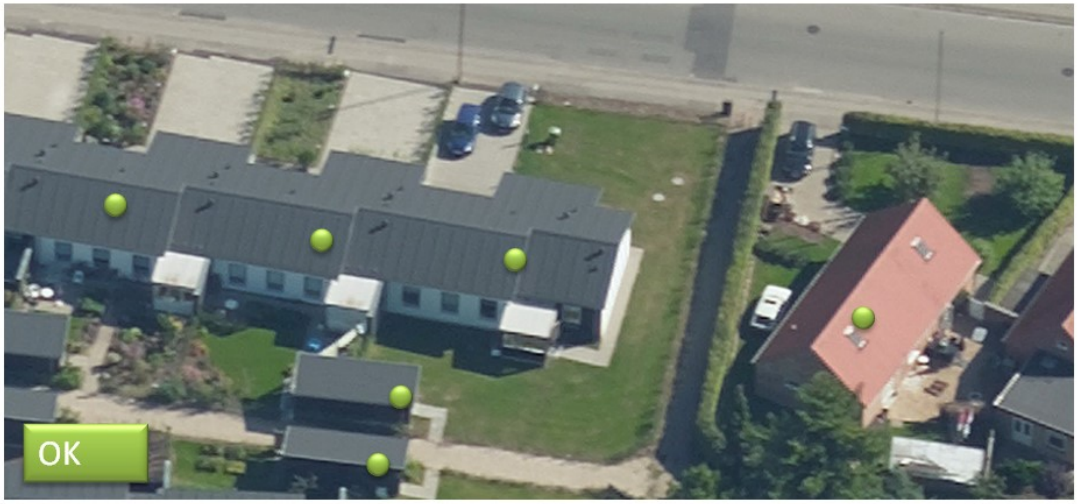
10 cm GSDx = National dataset

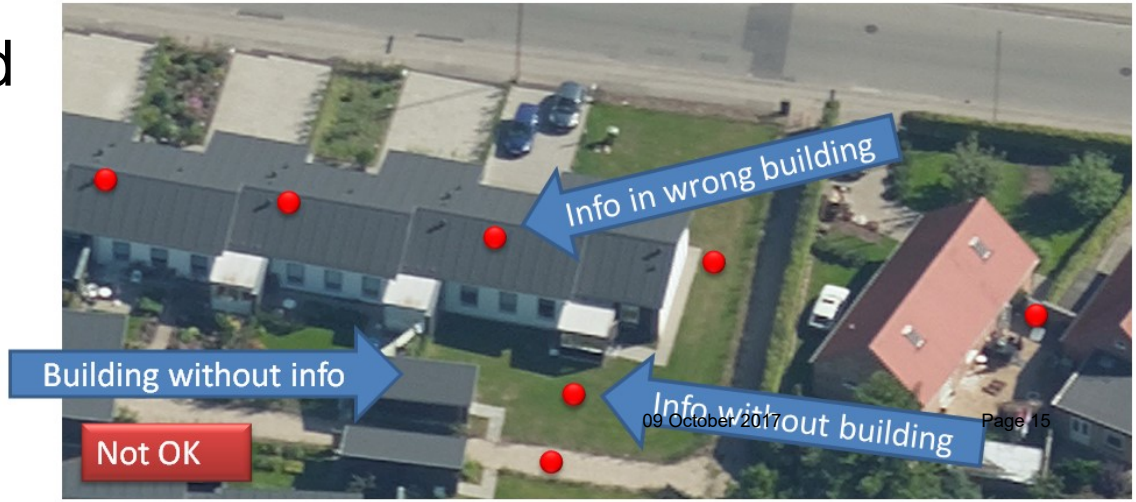
How to specify ? - Accuracy

Easily specified

– but at what cost ?

- Direct orientation ?
- Full AT on Nadir ?
- Full AT on Oblique and Nadir?
- Subset AT on Ob. and Na. for boresight with full AT on Nadir ?
- ……





The now - Status

Data acquisition

- Denmark was acquired from Feb. to Sep.
- 4 Vexcel Osprey mark 2
- 1 Leica RCD 30

Image computation

- Ongoing – reprocessing (contrast and artefacts both systems!)

Distribution

- We need a WOS – WebObliqueService

  like WMS, WFS, WCS ….

Artefacts

Artefacts

Artefacts

The future

2018

- Images viewable by the Ministry of Taxation
- Free web viewing for all

Later

- Pointclouds for updating LiDAR DEM
- 3D building models
- Sensor/data fusion with LiDAR, Nadir, etc.

Kontakt:

anfla@sdfe.dk

Foto: Colourbox.com