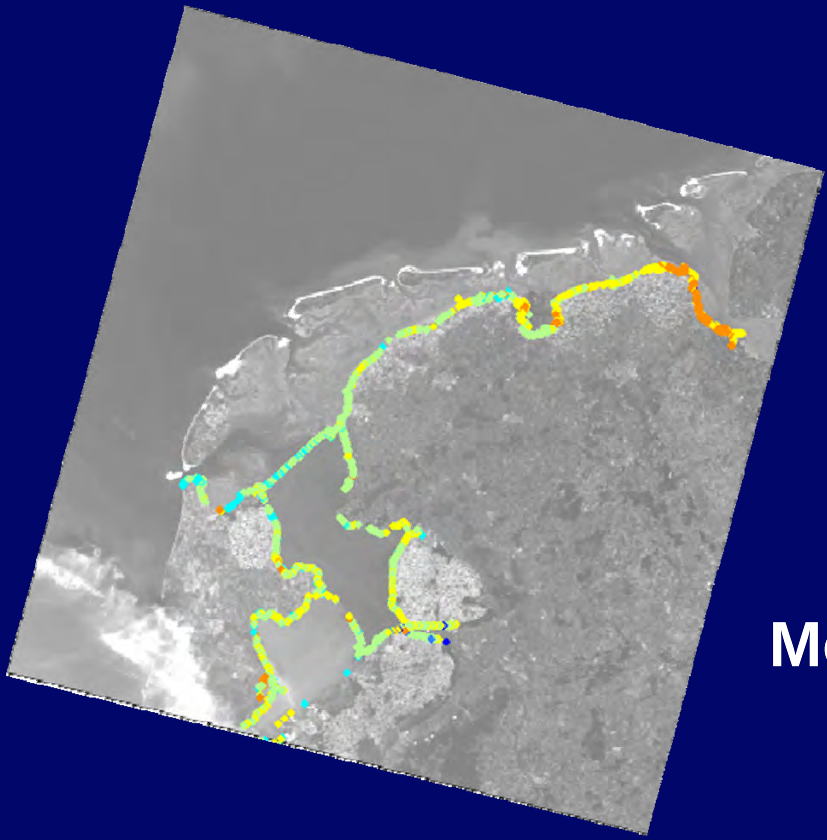


Monitoring levees from space: cases in The Netherlands

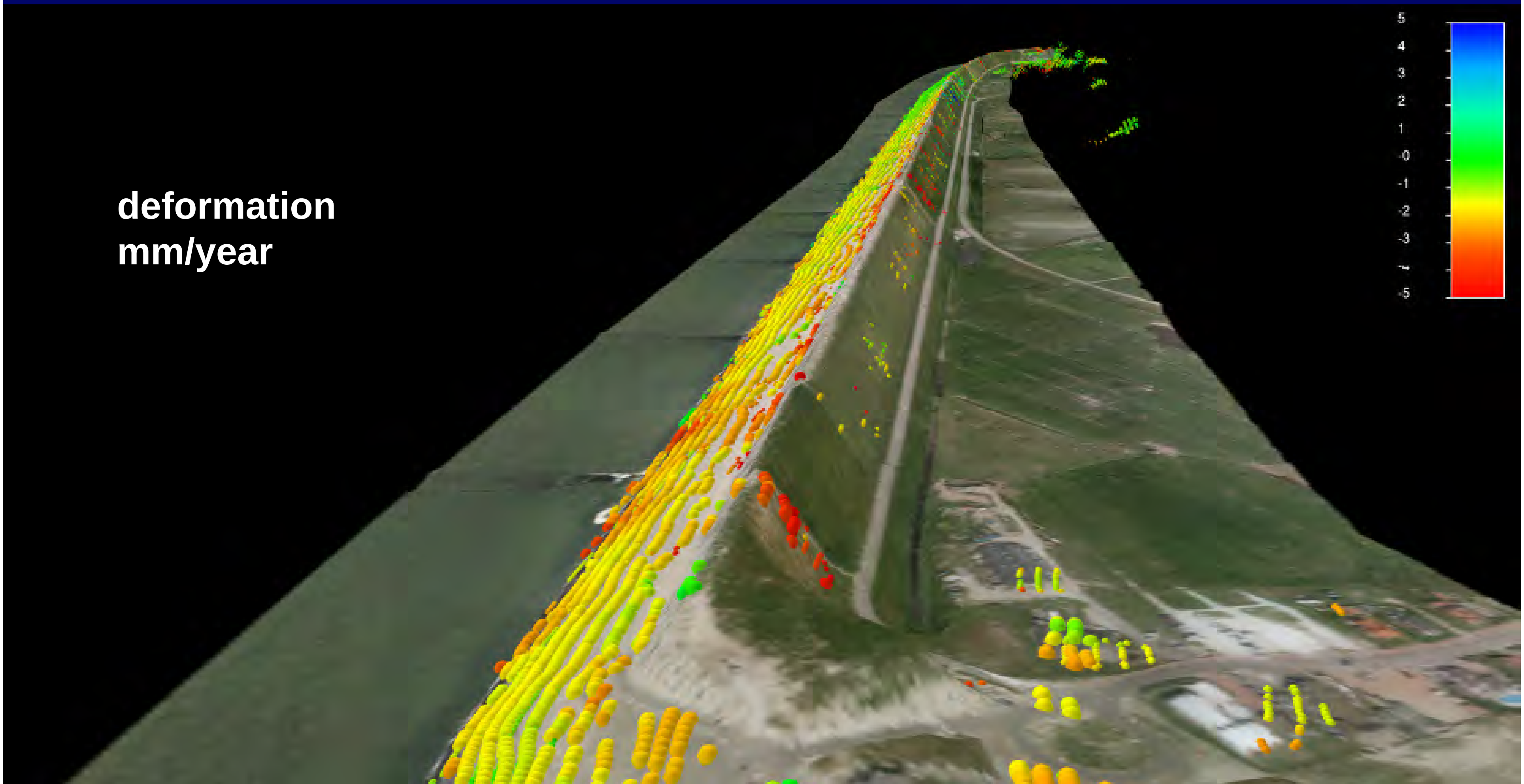
Freek van Leijen
Hansje Brinker B.V., The Netherlands

Terrafirma workshop 2010



Monitoring by satellite

deformation
mm/year



Situation in The Netherlands

Source: RWS, Primaire waterkeringen getoetst, sep. 2006

17.000 km water defense structures (dikes, levees, dams)

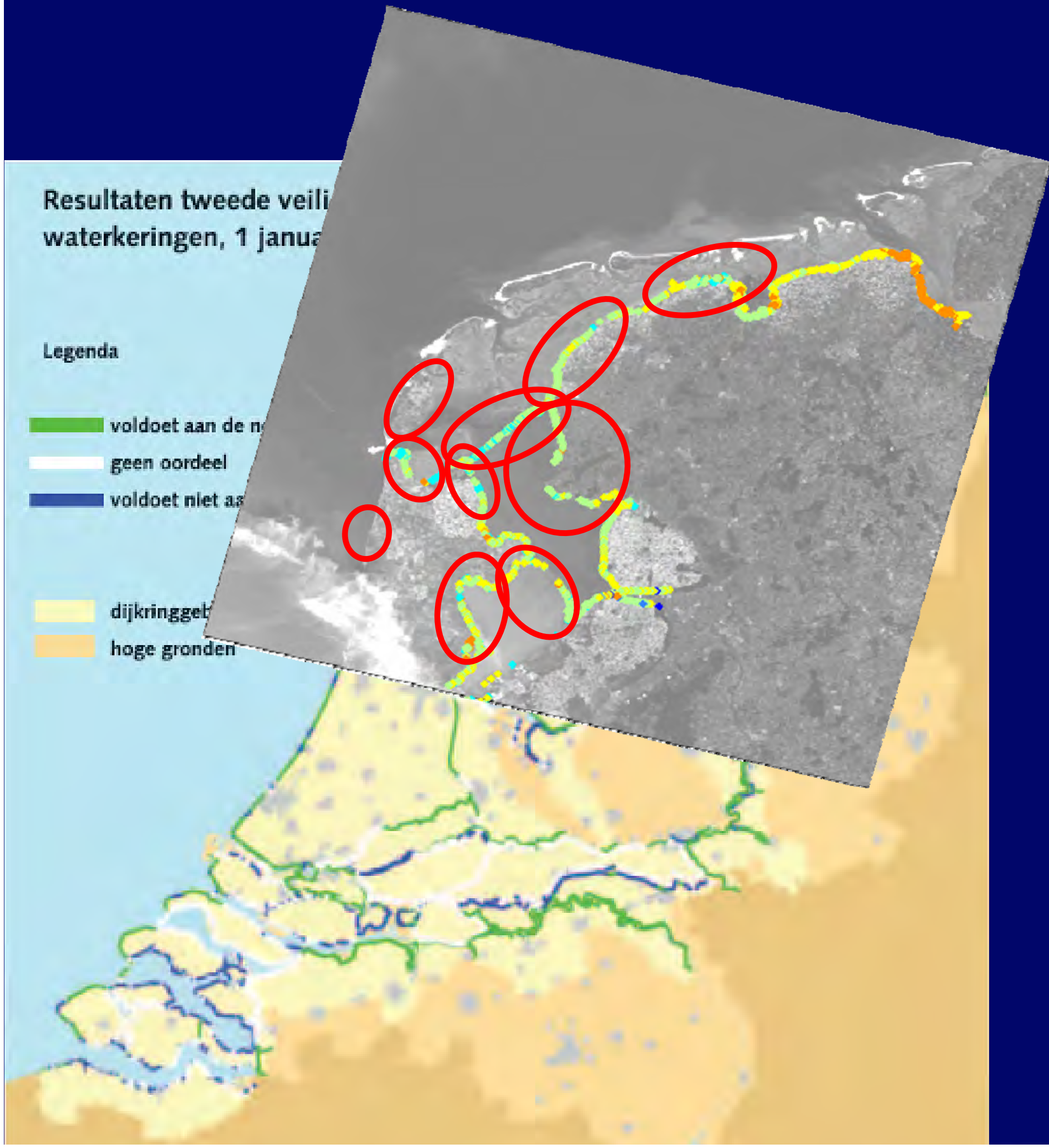
24% of primary dikes not conform norm
32% status unknown

Vulnerability stressed by Delta Committee
→ advice on protection involving billions of Euros

Situation in The Netherlands

Source: RWS, Primaire waterkeringen getoetst, sep. 2006

- Monitoring by radar interferometry selected as one of two most promising techniques by panel of experts (out of 23 proposals, SBIR project)
- Only Remote Sensing technique (other technique in-situ)



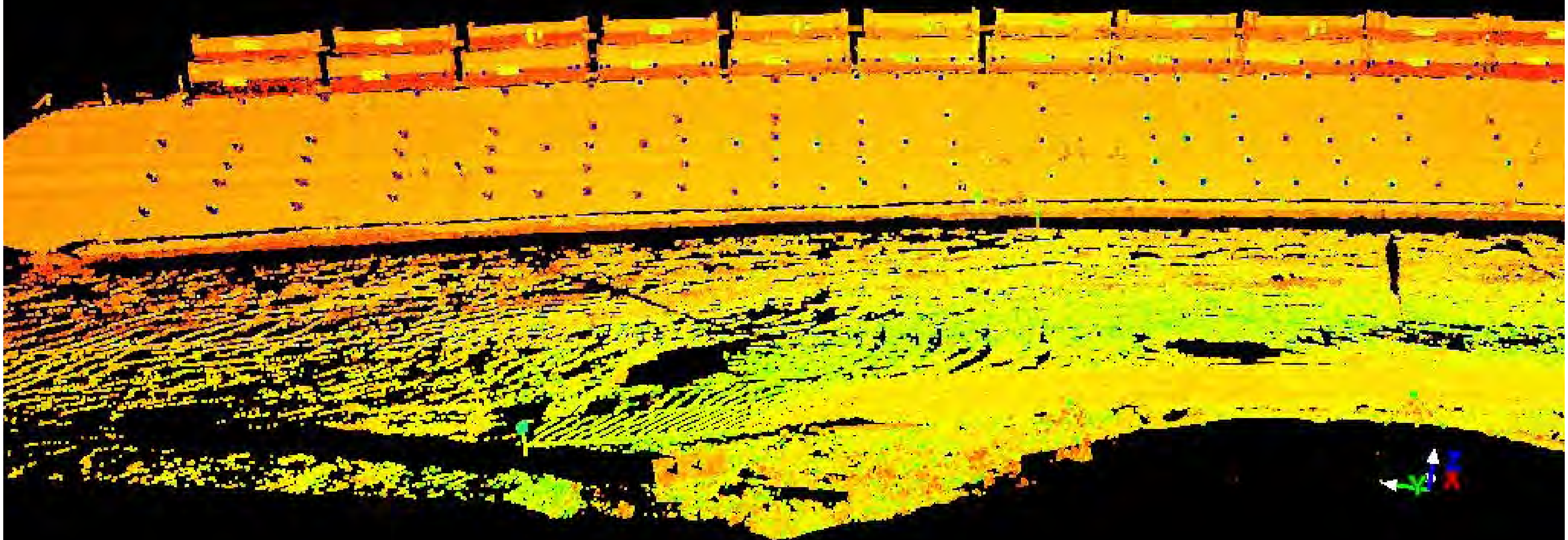
- Monitoring by radar interferometry selected as one of two most promising techniques by panel of experts (out of 23 proposals, SBIR project)
- Only Remote Sensing technique (other technique in-situ)

Q: Deformation, how relevant?

IJkdijk (calibration dike)

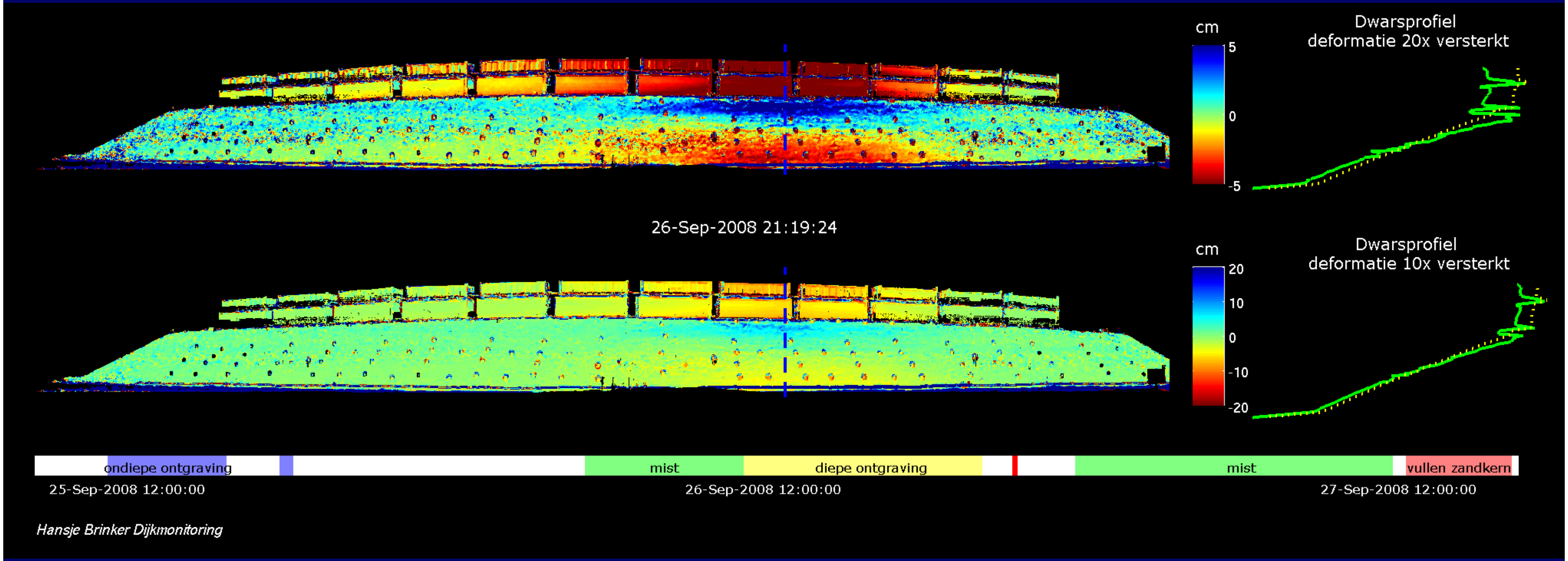
Courtesy: Stichting IJkdijk

Terrestrial laserscan



Collapse after 2.5 days

Deformation from terrestrial laser



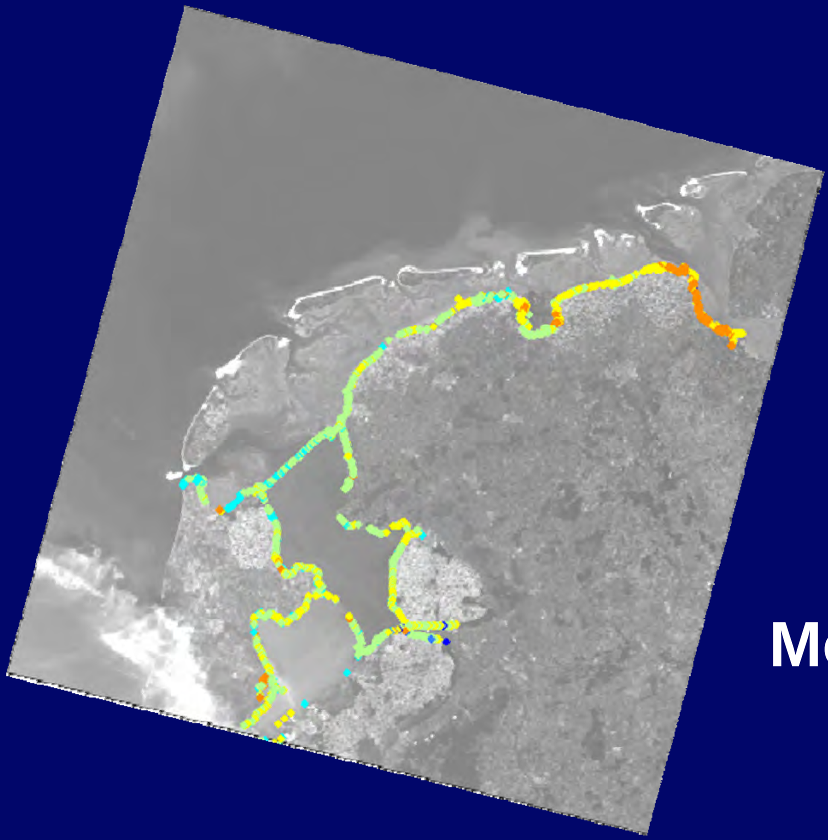
Deformation is first parameter indicating weak spot, 42 hours before collapse

Marken, The Netherlands

Conclusions

- PSI indicated as useful technique for monitoring of water defense structures
- Deformation is a very relevant parameter
- Local anomalies can be detected with mm-accuracy





Monitoring levees from space: cases in The Netherlands

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