



Rekenen aan grondlichamen

primaire en secundaire waterkeringen

John van Esch

5 februari 2013

Aanleiding



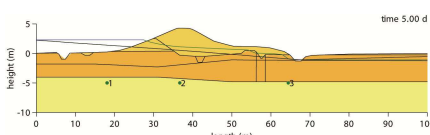
Wilnis 2003
7000 km veenkaden meer...



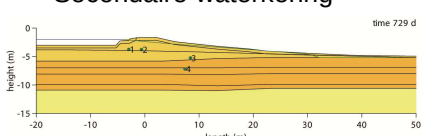
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Rekenmodellen

Primaire waterkering



Secondaire waterkering



DAM ontwerpen en toetsen

- geometrie en ondergrond
- materiaaleigenschappen
- belastingen
- mechanismen

FEWS-DAM real time rekenen

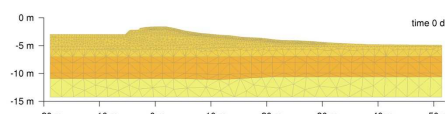
- monitoring

Deltares

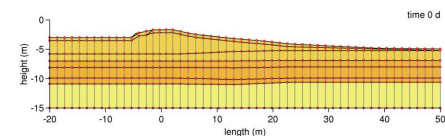
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Rekenmodellen

DAM, 2D / 3D stationair



FEWS DAM, q2D / q3D tijdsafhankelijk



Klimaatmodule

- neerslag en verdamping
- hoogwatergolven
- waterspanningsmetingen

Doel

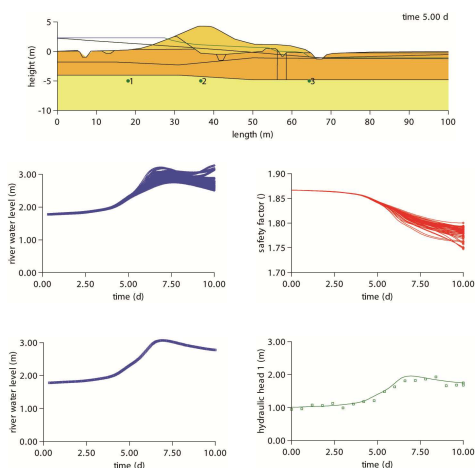
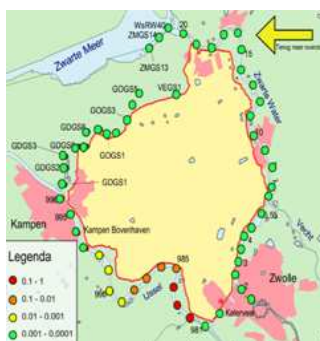
- ontwerp model
- monitoring tool

Deltares

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Primaire waterkering

Dijkkring 10

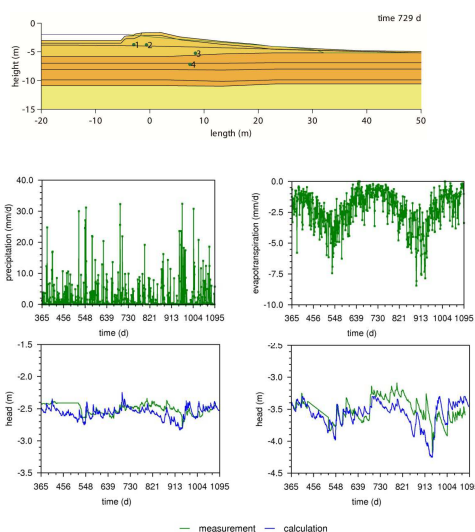


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Deltares

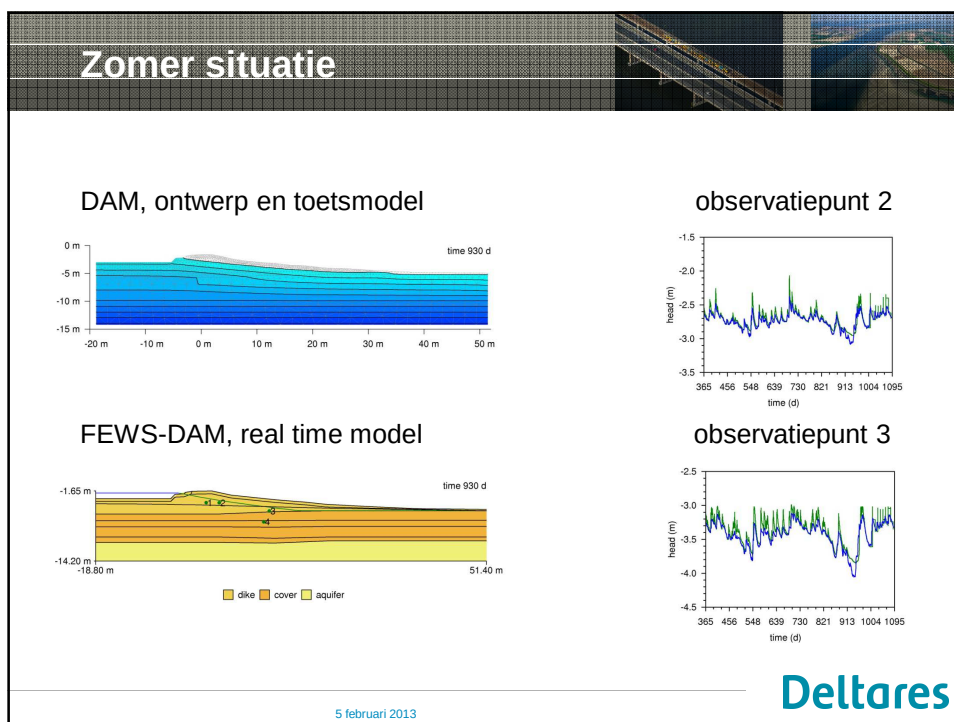
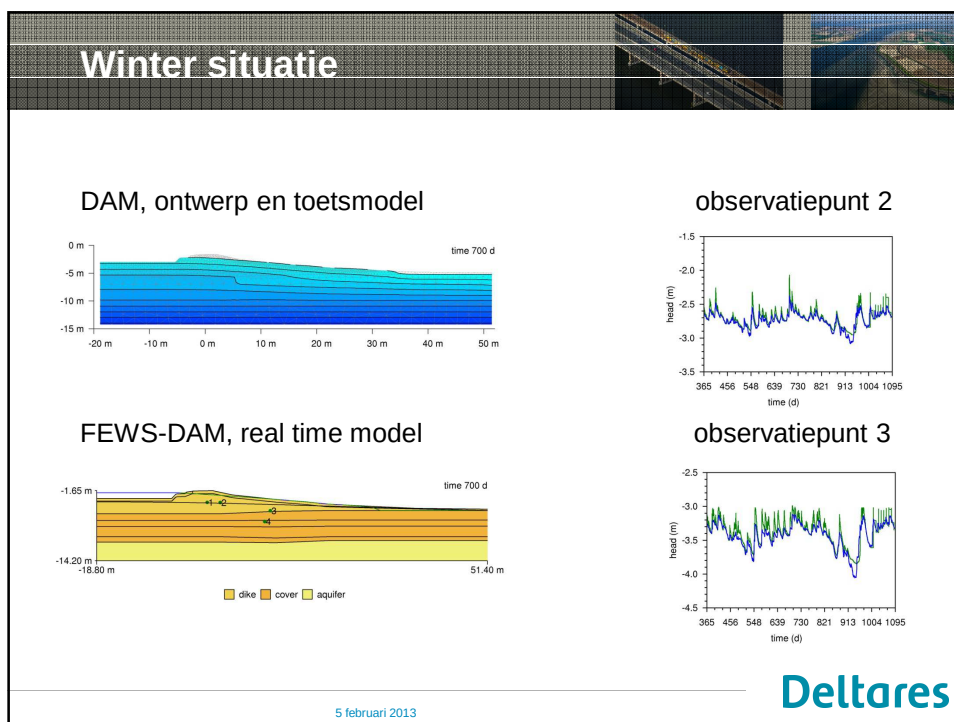
Secondaire waterkering

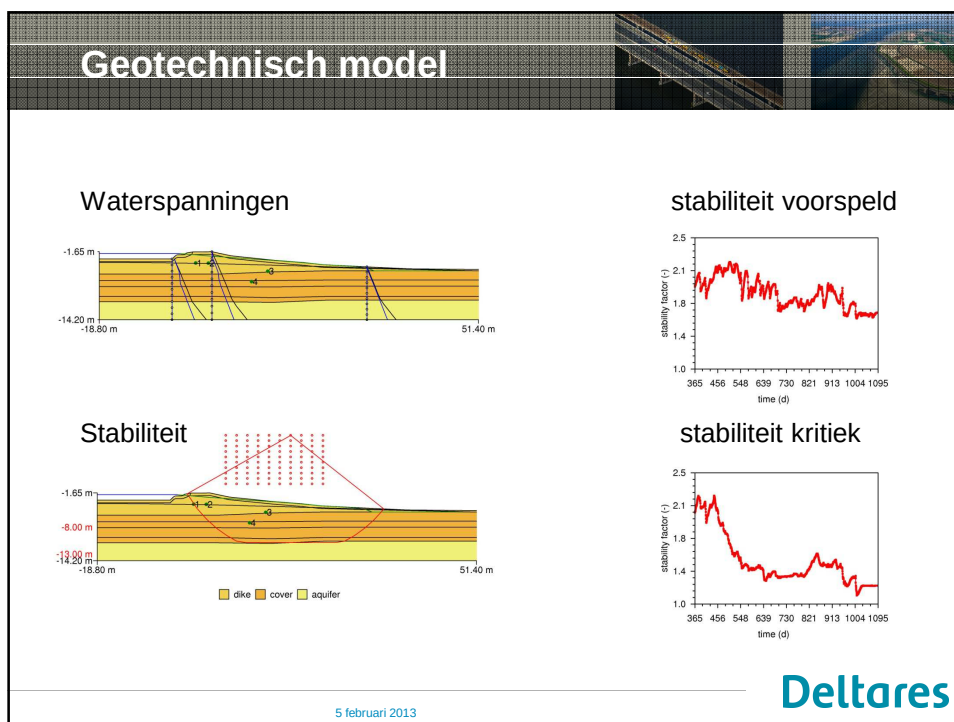
Middelburgse kade Boskoop



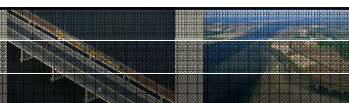
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Deltares





Rekenen aan grondlichamen



Vervolg

- Data assimilatie technieken
- Verificatie grondwatermodel Dupuit – Richards
- Verificatie stabiliteitsmodel Bishop - Spencer – cphi reductie
- Case studie primaire waterkering
- Case studie secundaire waterkering
- Koppeling regionale modellen gis – modflow – sobek