



**WANDA**

**Deltares**  

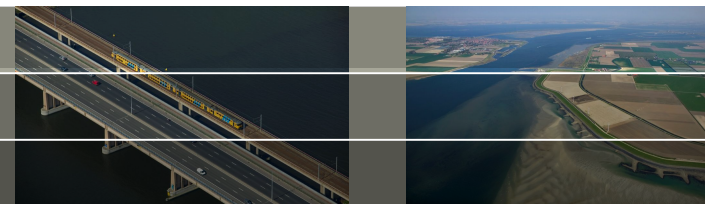

**Wanda WEC - OpenMI**

## Wanda 4 Koppeling externe programma's

Twee mogelijkheden:

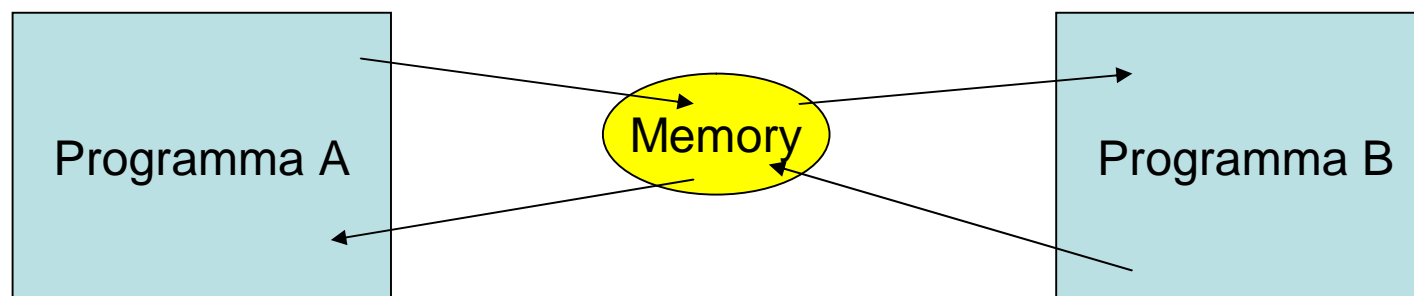
- Wanda External Communication (WEC – sinds 2005)
- Open Modelling Interface standaard (OpenMI – sinds 2009)

# WEC

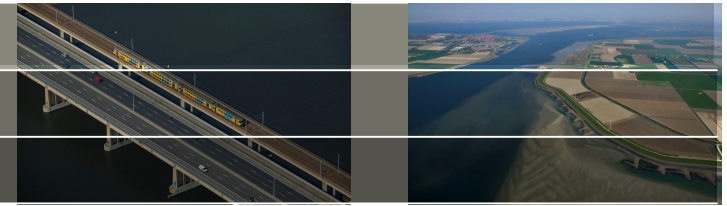


WEC = Wanda External Cummmunication

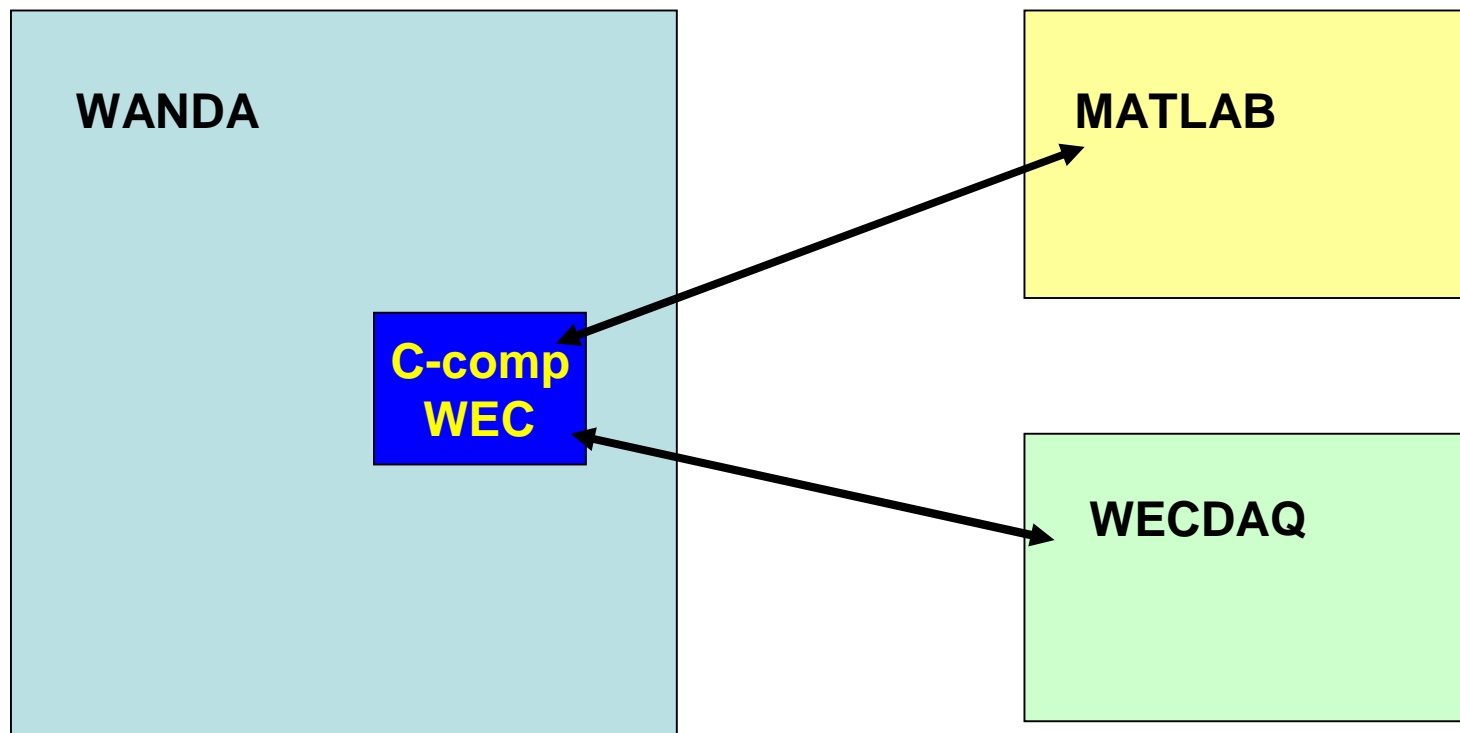
Uitwisseling van set gegevens tussen 2 actieve programma's gebruik makend van stukje gezamenlijk geheugen (shared memory)



# WEC

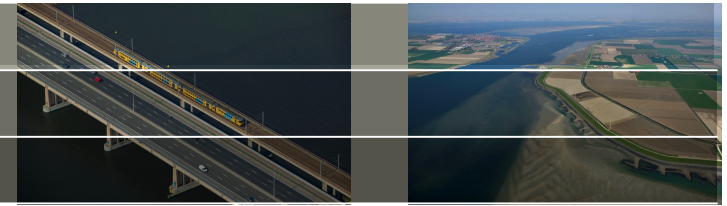


2 verschillende uitgevoerde toepassingen:



Communicatie door speciale control componenten WECxy

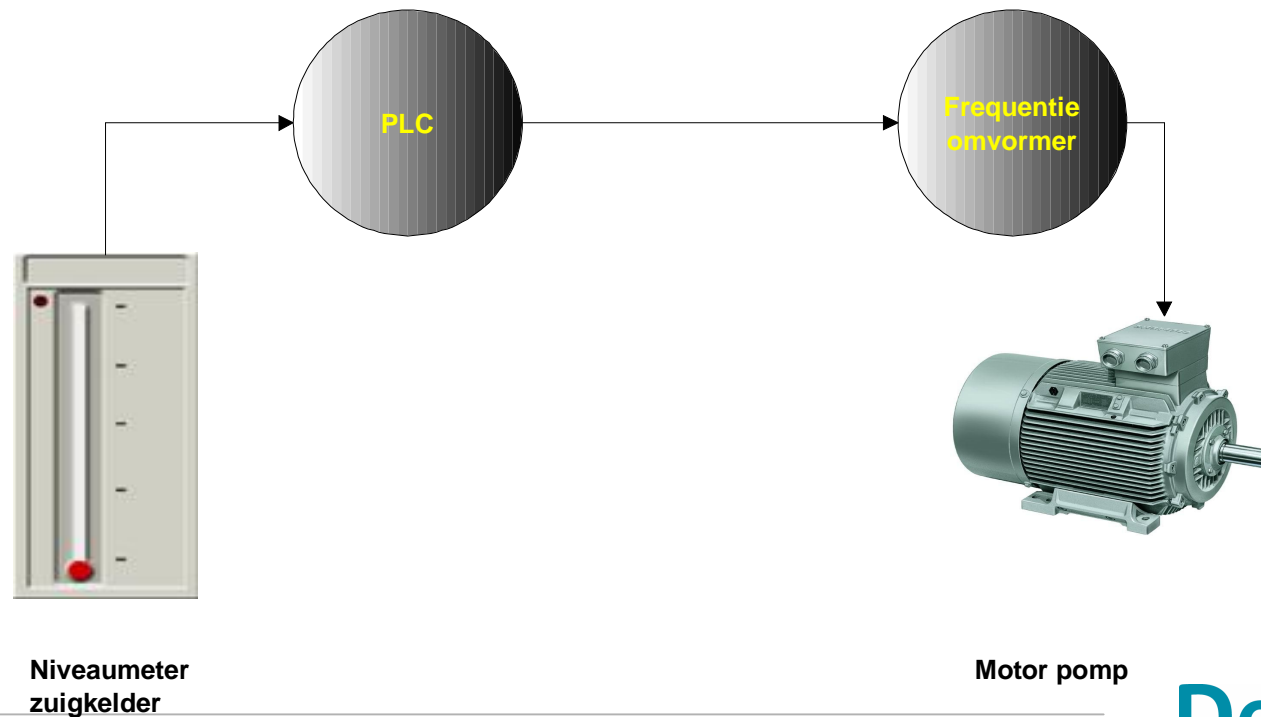
# Gemalen simulator



Doel gemalen simulator:

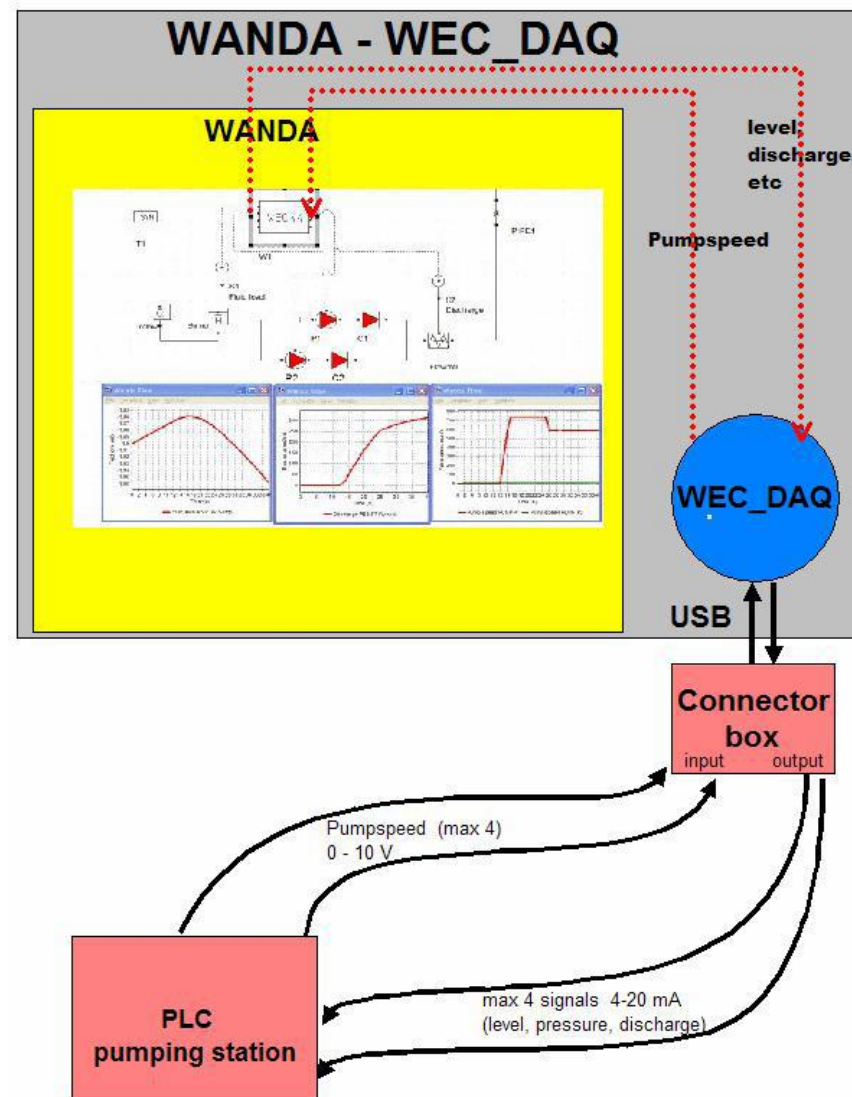
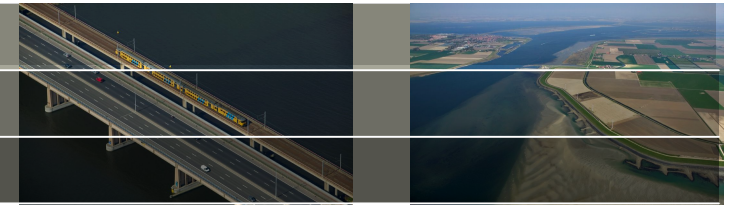
Inregelen PLC m.b.v. digitaal water

## Principe gemaalbesturing

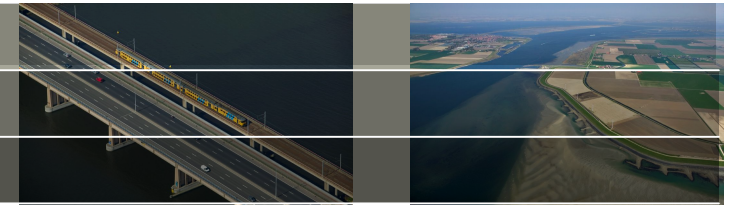




# Gemalen simulator



# Gemalen simulator



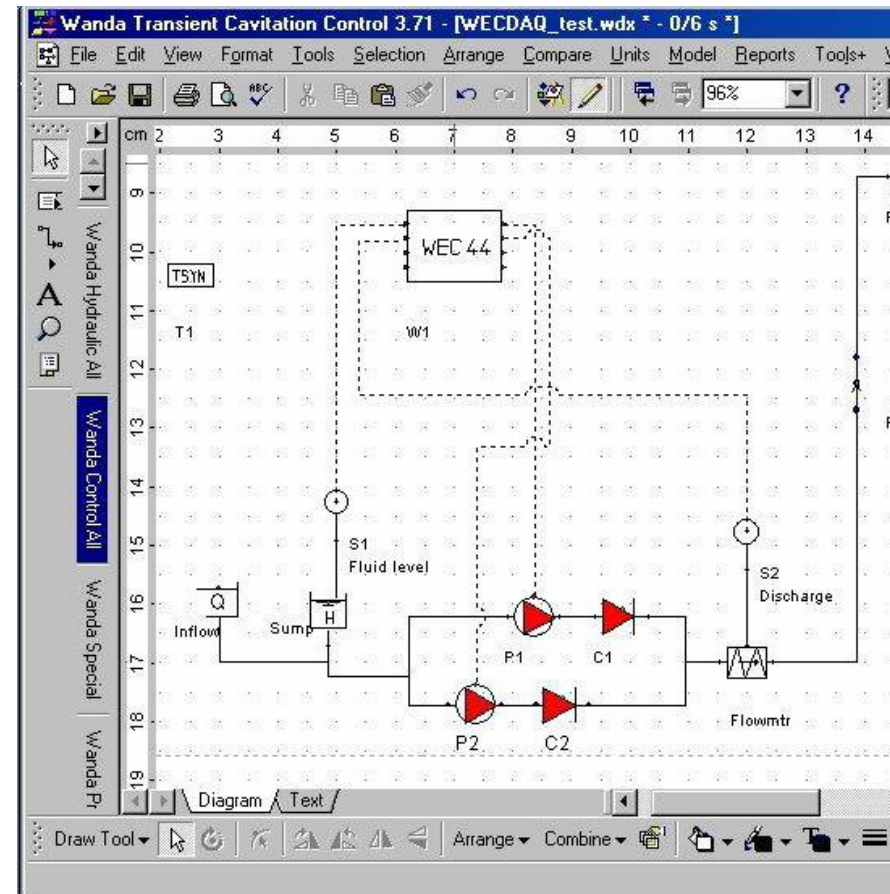
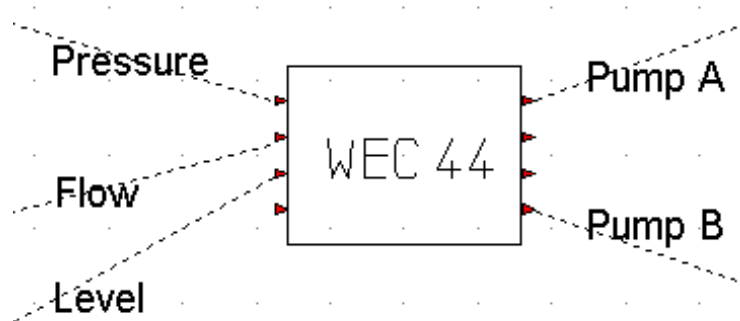
Wanda schematisatie:

Control component

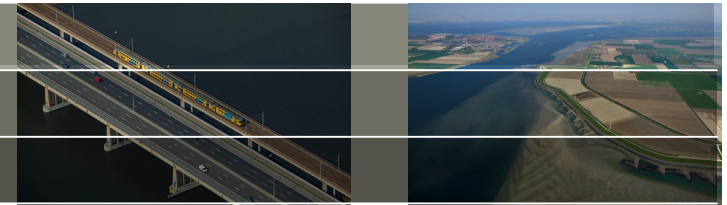
WEC

(diverse varianten

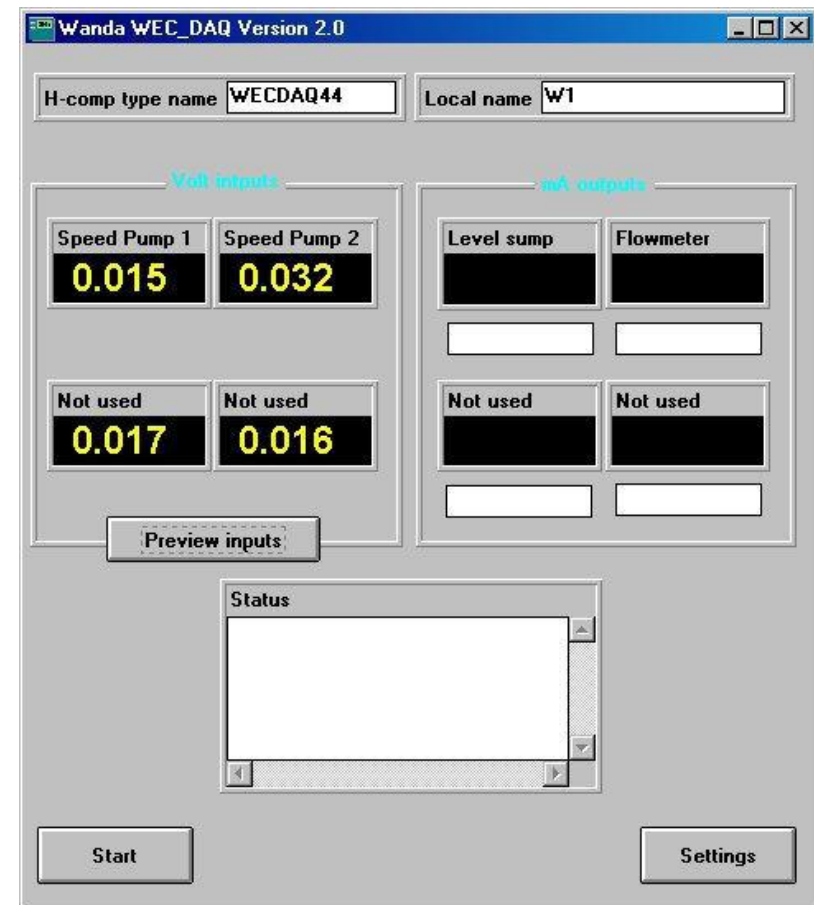
In/Out kanalen max 8)



# Gemalen simulator

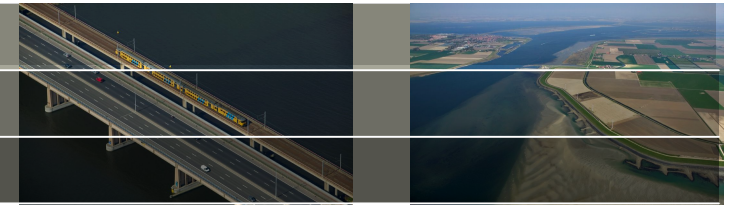


WECDAQ hardware en software

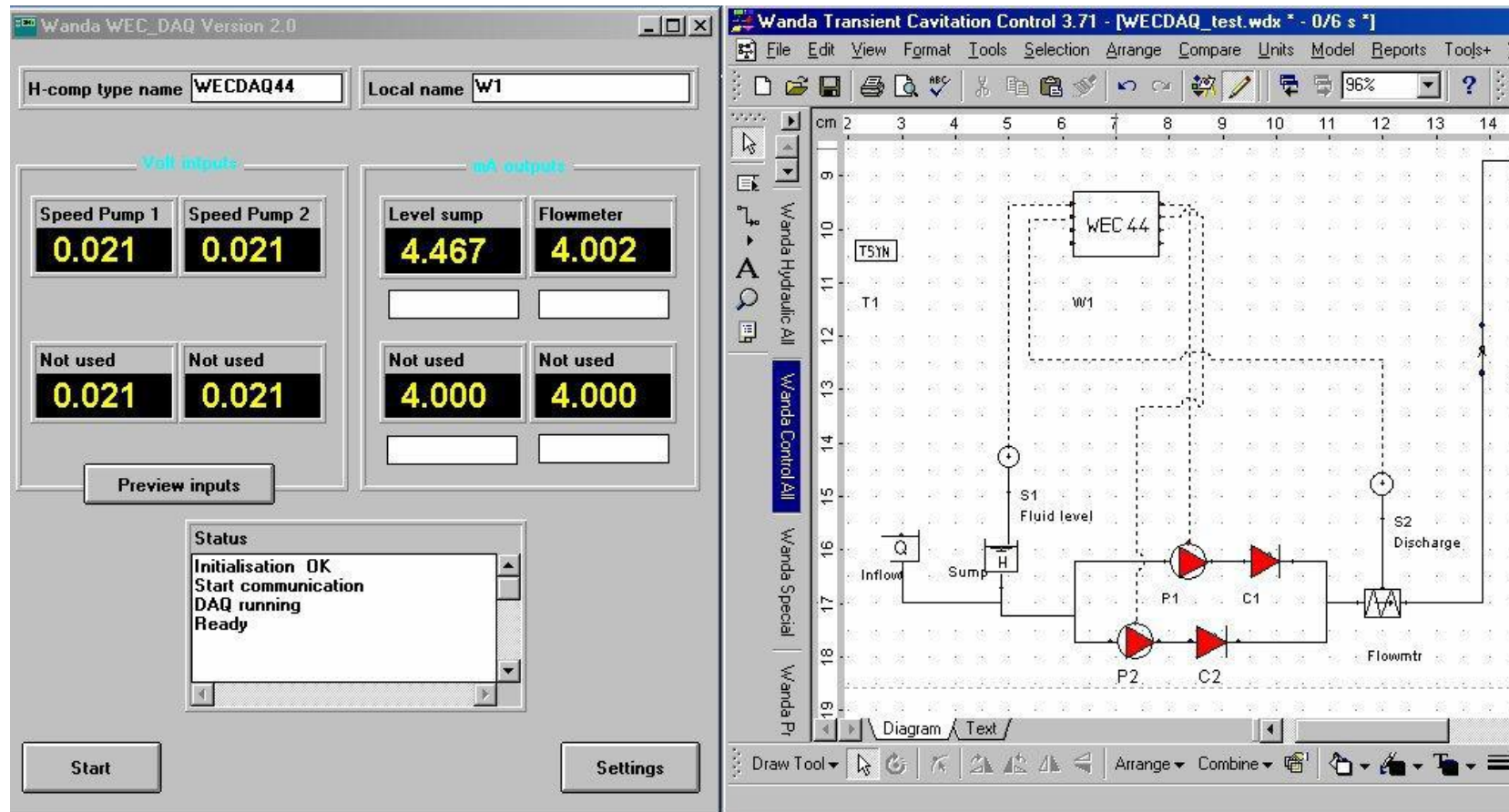




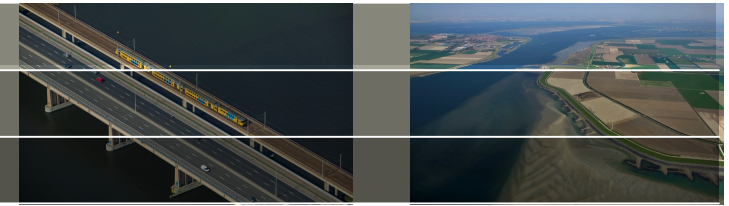
# Gemalen simulator



## Demonstratie

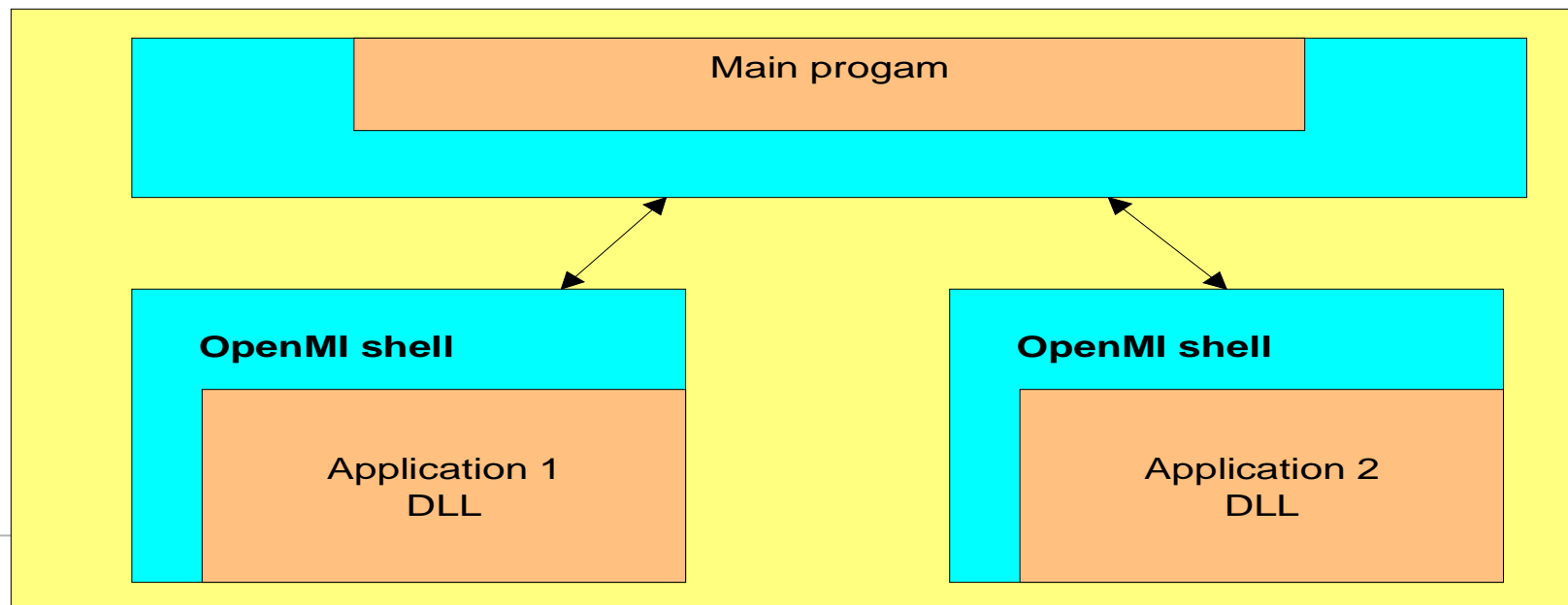


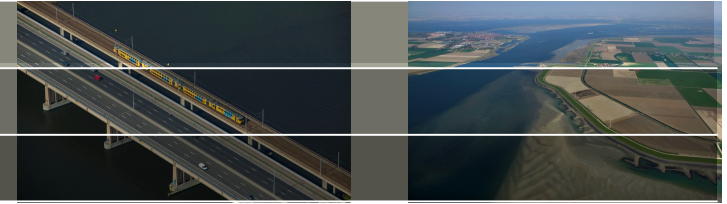




## Open Modelling Interface:

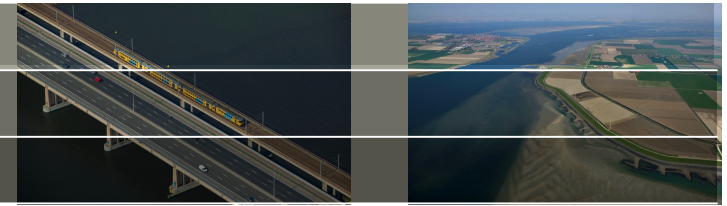
- Standaard die het koppelen van numerieke modellen vereenvoudigt.
- Eenduidige specificatie welke grootheden op welke geometrische locatie (plaats) binnen welk tijdsdomein kunnen worden uitgewisseld.





## Open Modelling Interface:

- Standaard die het koppelen van numerieke modellen vereenvoudigt.
- Eenduidige specificatie welke grootheden op welke geometrische locatie (plaats) binnen welk tijdsdomein kunnen worden uitgewisseld.
  - Uitvoer van model A dient als invoer voor model B (en vice versa)
  - Deze gegevensuitwisseling vindt plaats op modeltijdstapbasis, waarna inde tijd en/of de plaats wordt geïnterpoleerd.
  - Twee of meer OpenMI-compliant modellen kunnen dus eenvoudig worden gecombineerd tot een geïntegreerde modelberekening



Voorbeeld .NET code:

```
ILinkableComponent wandaModel = new WandaEngine();
    wandaModel.Initialize(initializationArguments);

    IInput myPumpInputItem = wandaModel.InputItems[0];
    IOutput myDischargeOutputItem = wandaModel.OutputItems[0];

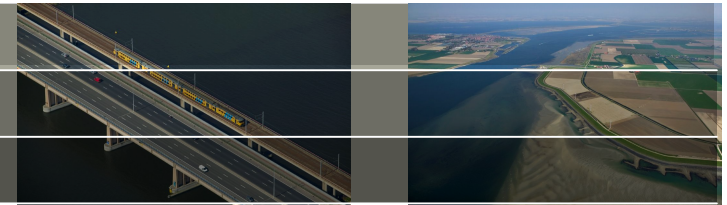
    while ( ! (wandaModel.Status == LinkableComponentStatus.Done) )
    {
        myPumpInputItem.Values[0] = newPumpValue;

        wandaModel.Update();

        updatedDischargeValue = myDischargeOutputItem[0];
    }
```



# OpenMI



Open Modelling Interface: Open source code .NET

Gezamenlijk ontwikkeling van:

**OpenMI Founders**  
Five organizations played instrumental role in the conception and development of the OpenMI standard

  **Centre for Ecology & Hydrology**  
NATURAL ENVIRONMENT RESEARCH COUNCIL

 **Wallingford Software**

 **DHI**  
WATER & ENVIRONMENT

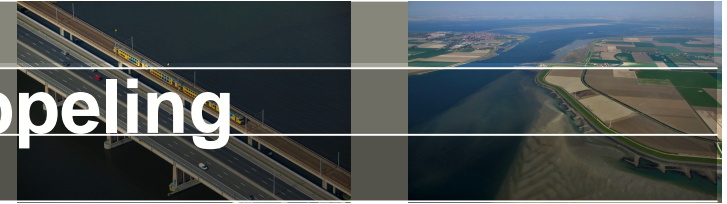


[Read more about OpenMI Association](#)

Meer informatie:

WWW.OPENMI.ORG

# OpenMI - Sobek – Wanda koppeling



Poldergemaal lozend op getijde water

Doel: energiebesparing gemaal – niet pompen tijdens HW

Vraag: wat is effect in het poldersysteem

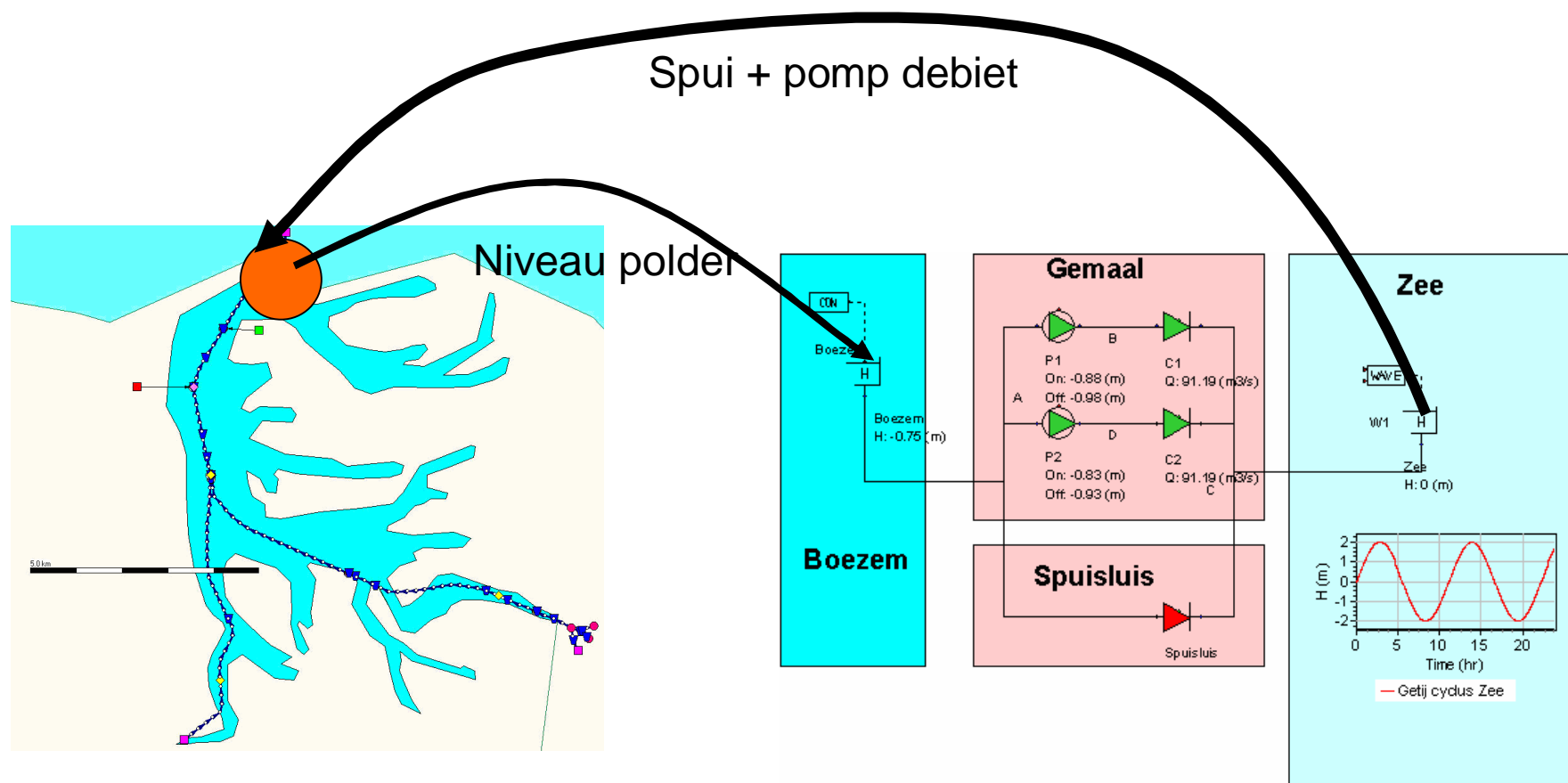
Sobek: 1D modellering van poldersysteem

geen pomp model met vermogen/rendement

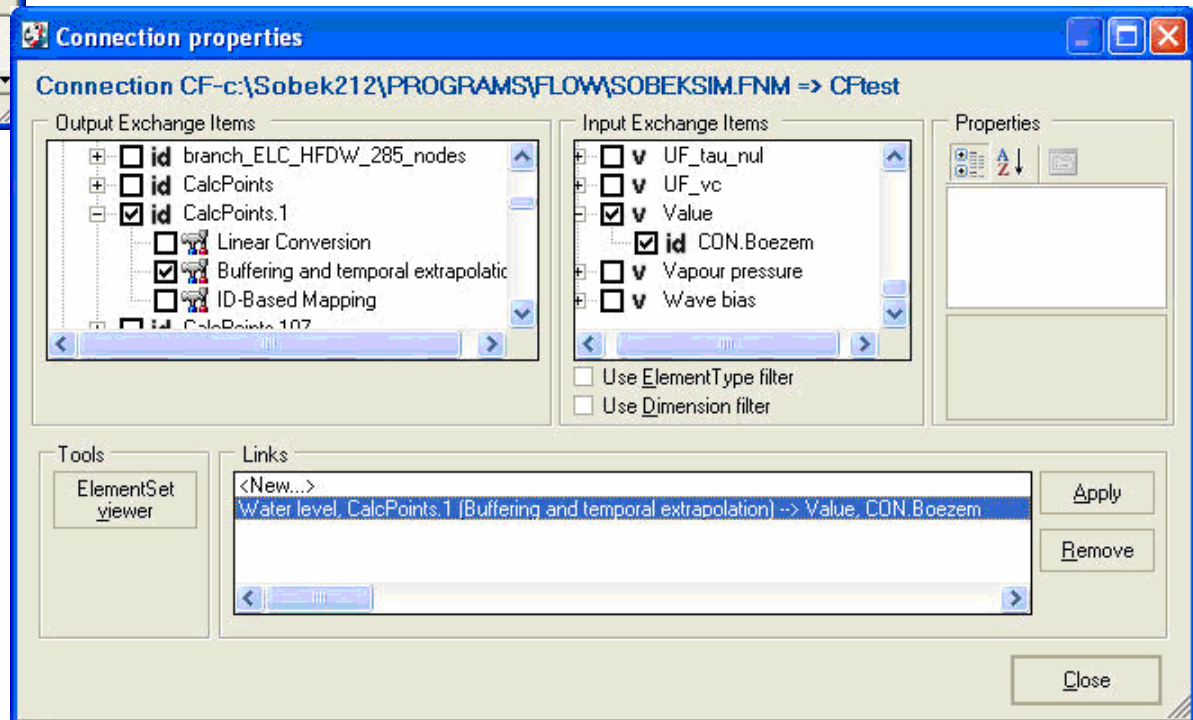
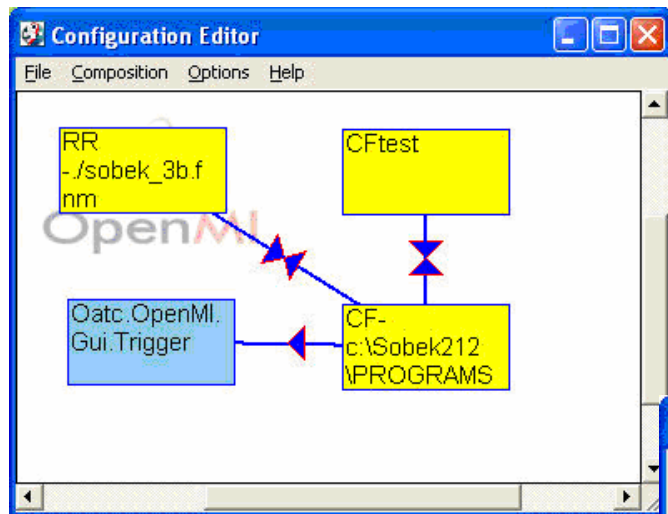
WANDA: goed pompmodel incl energieberekening  
niet geschikt om poldersysteem te modelleren

OPLOSSING: koppelen

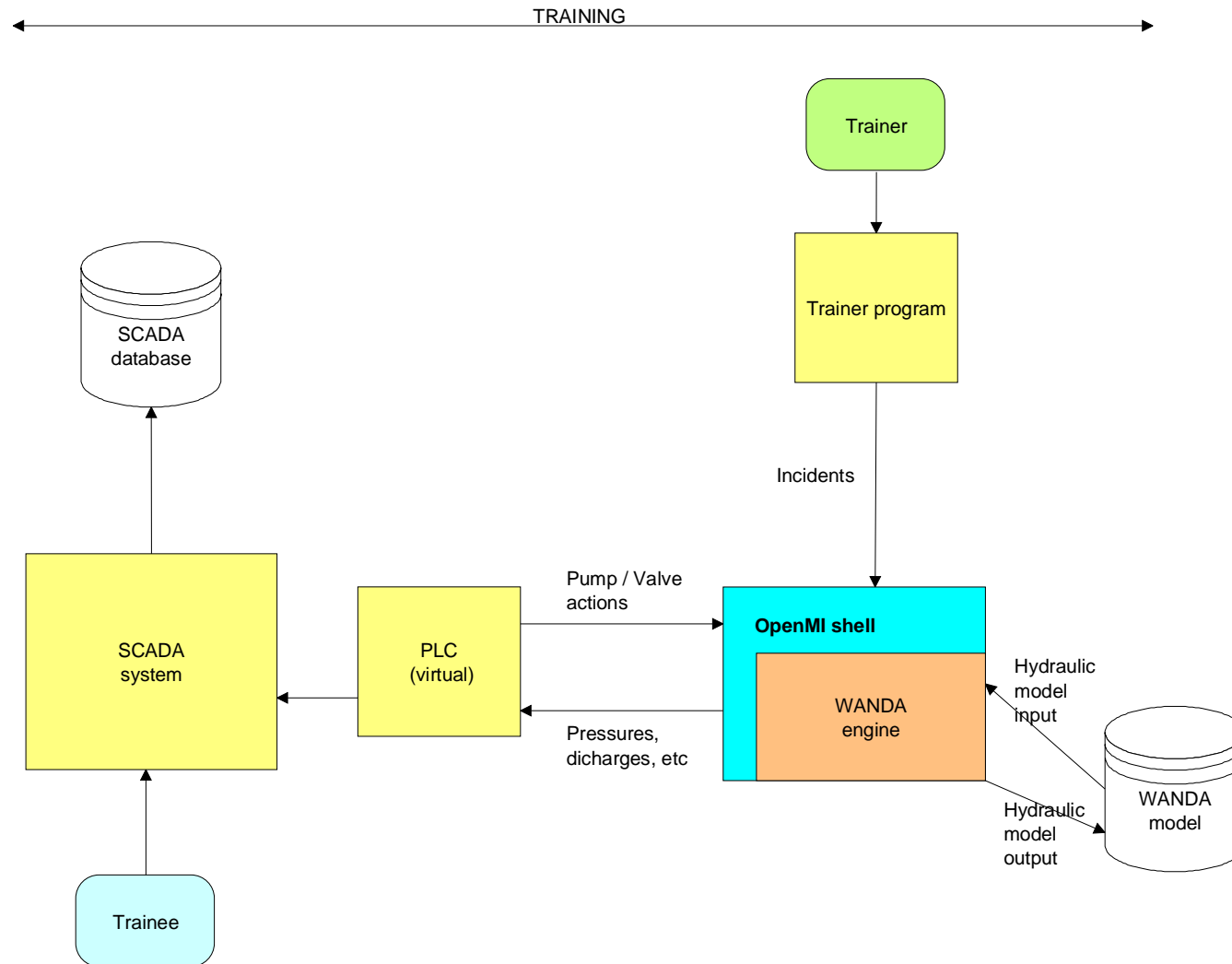
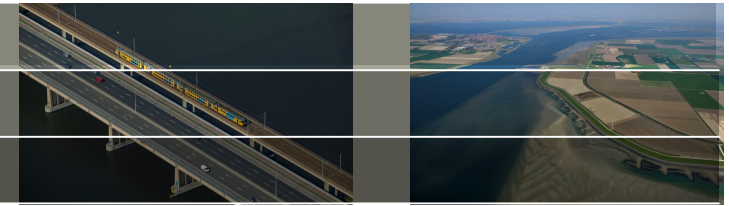
# OpenMI - Sobek – Wanda koppeling



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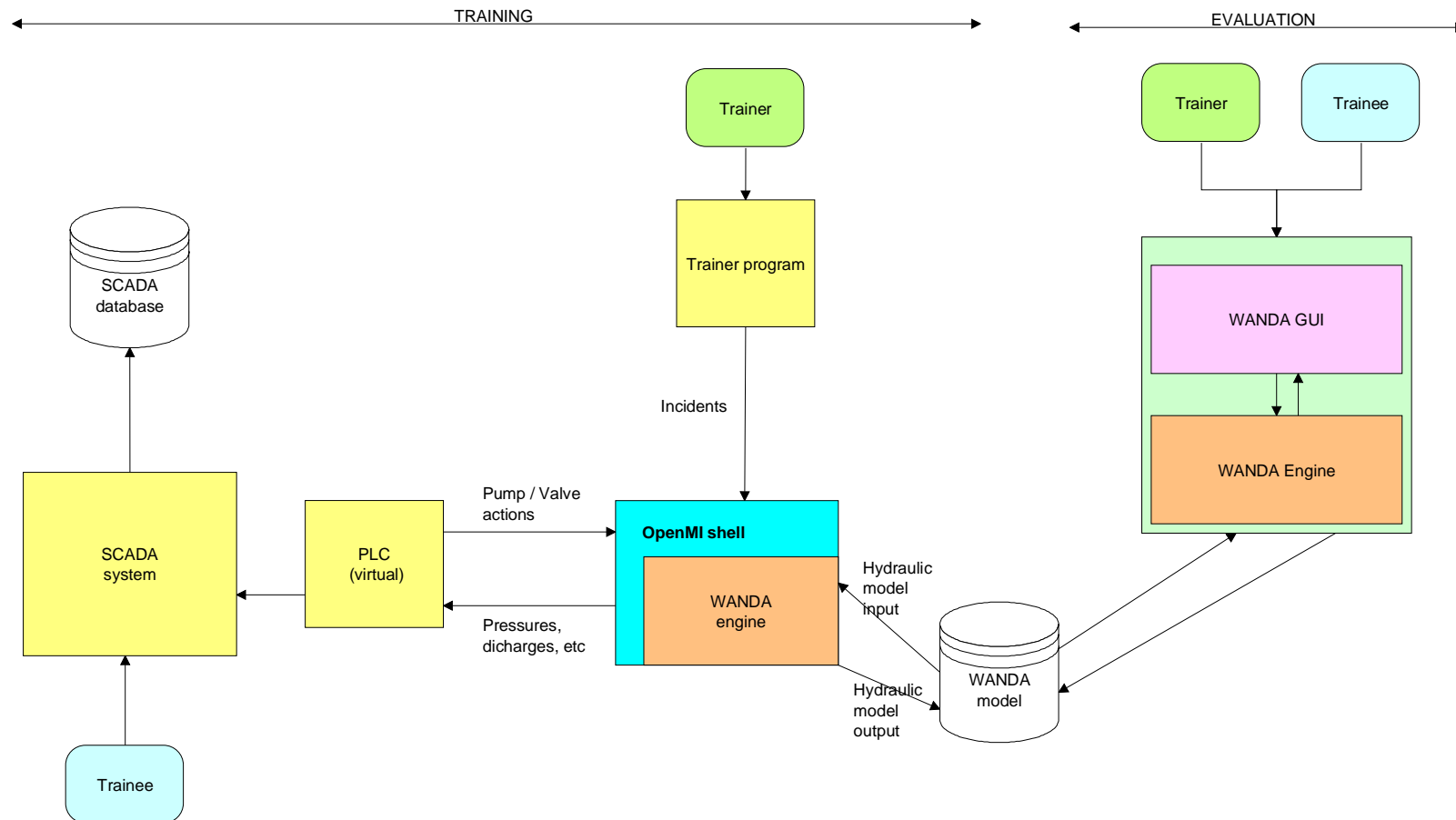
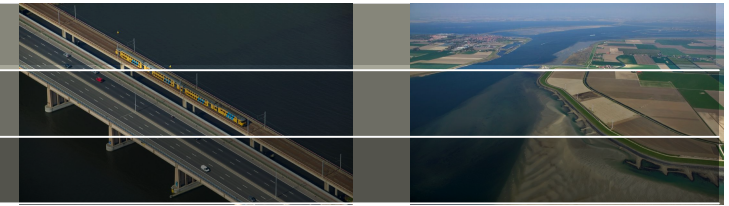


# OpenMI - Trainingssimulator

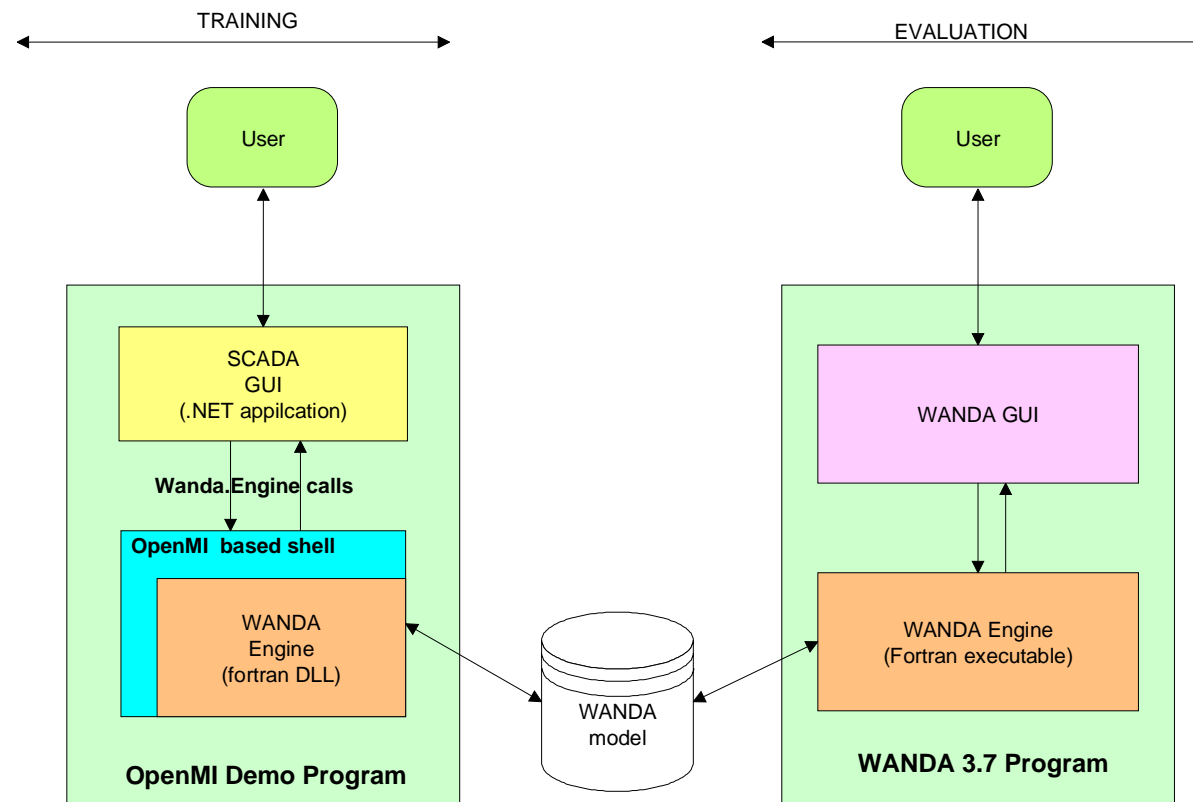




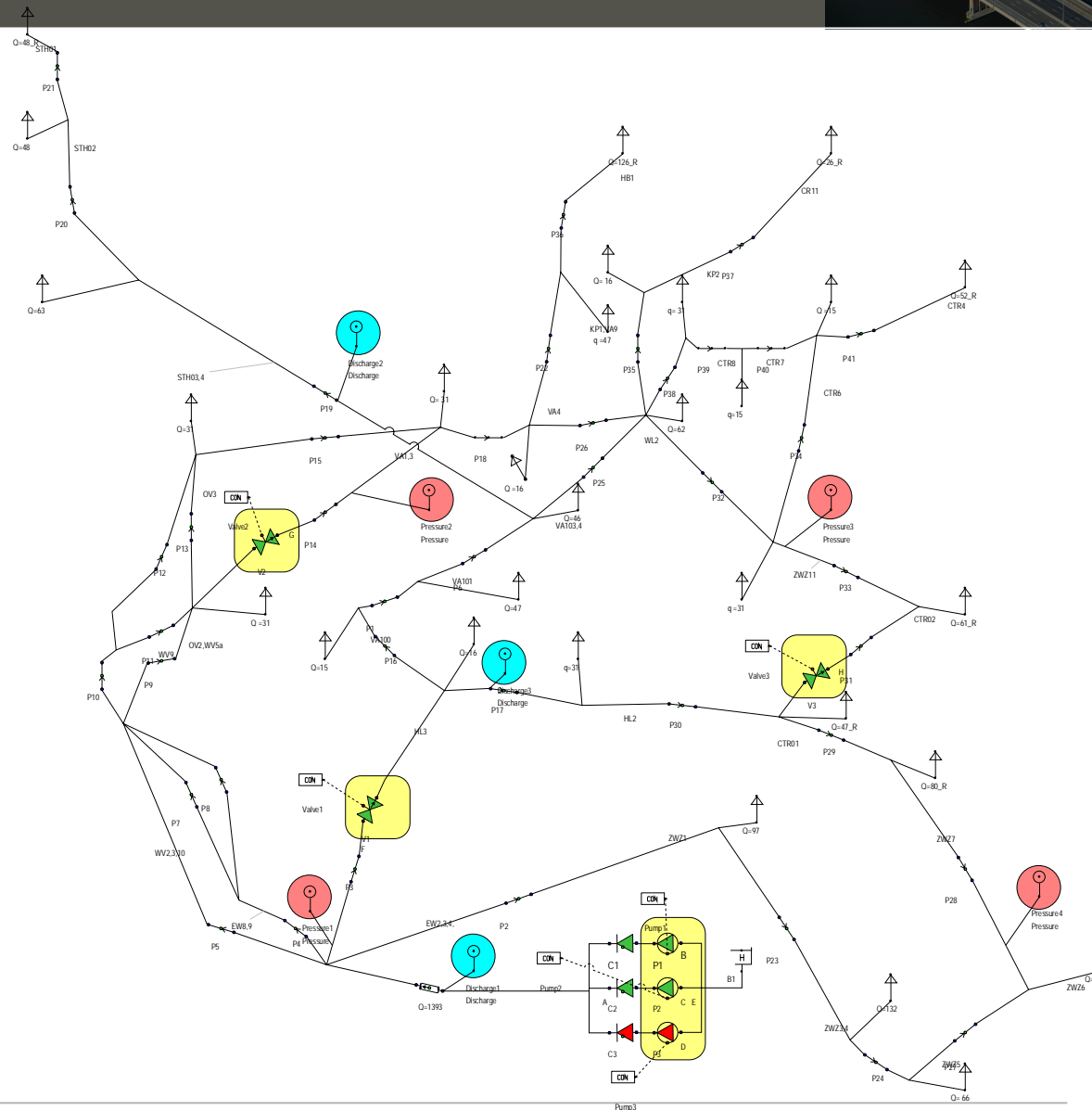
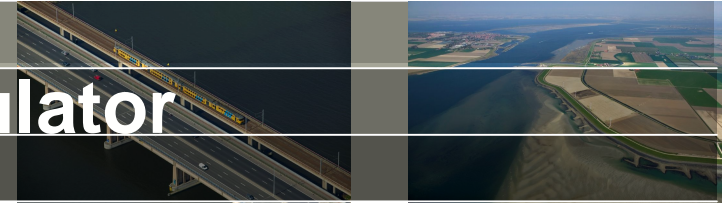
# OpenMI - Trainingssimulator



# OpenMI – demo trainingssimulator



# OpenMI – demo trainingssimulator



4 maart 2010

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# OpenMI – demo trainingssimulator

