



INTEGRATING DATA ACROSS DISCIPLINES

BUILDING ENGAGEMENT THROUGH DATA USABILITY

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QUESTIONS

- Can data be usable for everyone?
- **MODELS**: Can they live beyond silos?
- **Model integration**: implications for policy
- **Usability**: Metadata, FAIR
- **Impact**: People and society?

M.R.S. KEY WORDS

CONCEPTS

- Data
- Models
- Integration
- **ACCESSIBILITY**
- **METADATA**
- **REPRODUCIBILITY**

IMPLICATIONS

- Decision-making
- Governance
- Water Management
- Collaboration

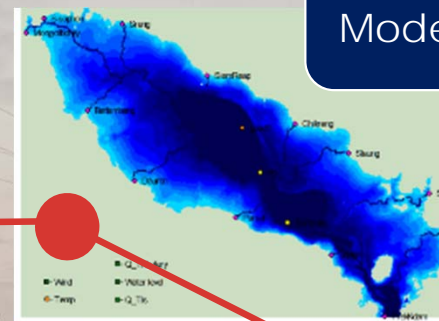
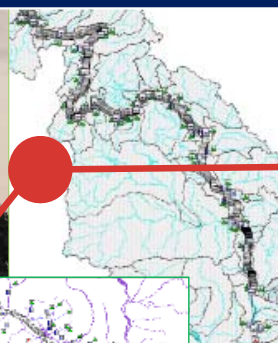
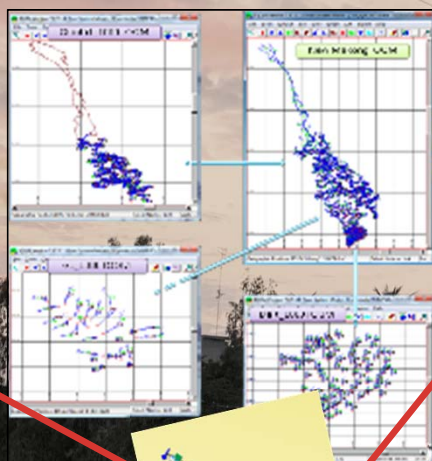
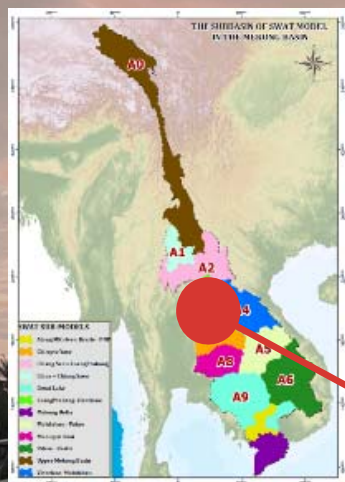
Soil and Water
Assessment Tool
–SWAT (DSF)

Water Resource
IQQM (DSF)

Hydrodynamic
sediment and
water

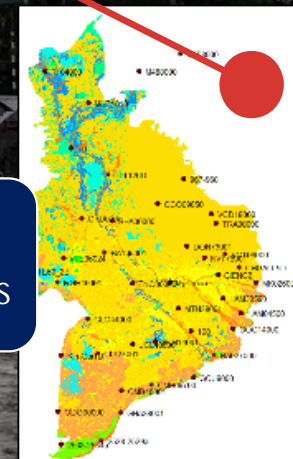
HYDROLOGIC MODELS

WUPFIN 2D-EIA
Model (Tonle sap)



Water-Sediment
Resource –
eWater SOURCE

WUPFIN
Assessment Tools



BASELINE MODEL CONSIDERATIONS



Determine inputs &
outputs to be used



What datasets
can be used for
model input?



Coordinate
information
exchange

VISUALIZING MODELS



How will model outputs
be integrated and
results be displayed?



Discussion of scenarios

OPEN

"OPEN" DEFINITIONS

- open **SOURCE**: Refers exclusively to **software**
 - **Source code** for that software is openly available
 - **Allows for code modification**
 - software may be redistributed freely
- open **ACCESS**: refers to **unrestricted public access** to data
(OPEN DATA)

SCIENCE DATA LIFECYCLE



PLAN



ACQUIRE



PROCESS



ANALYZE



PRESERVE



PUBLISH/SHARE

M
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METADATA

- Maintain historical records of long-term data sets
- Makes up for inconsistencies that can occur in documenting data, personnel and methods.
- Can enable data sets designed for a single purpose to be reused for other purposes and over the longer term.

DESCRIPTIVE METADATA

- ▶ adds information about who created a resource
- ▶ what the resource is about, what it includes

STRUCTURAL METADATA

- ▶ includes additional data about the way data elements are organized
- ▶ their relationships and the structure they exist in

ADMINISTRATIVE METADATA

- ▶ provides information about the origin of resources, their type and access rights

FAIR DATA



FINDABLE
(globally
unique)



ACCESSIBLE
(open)



INTEROPERABLE
(consistent
language)



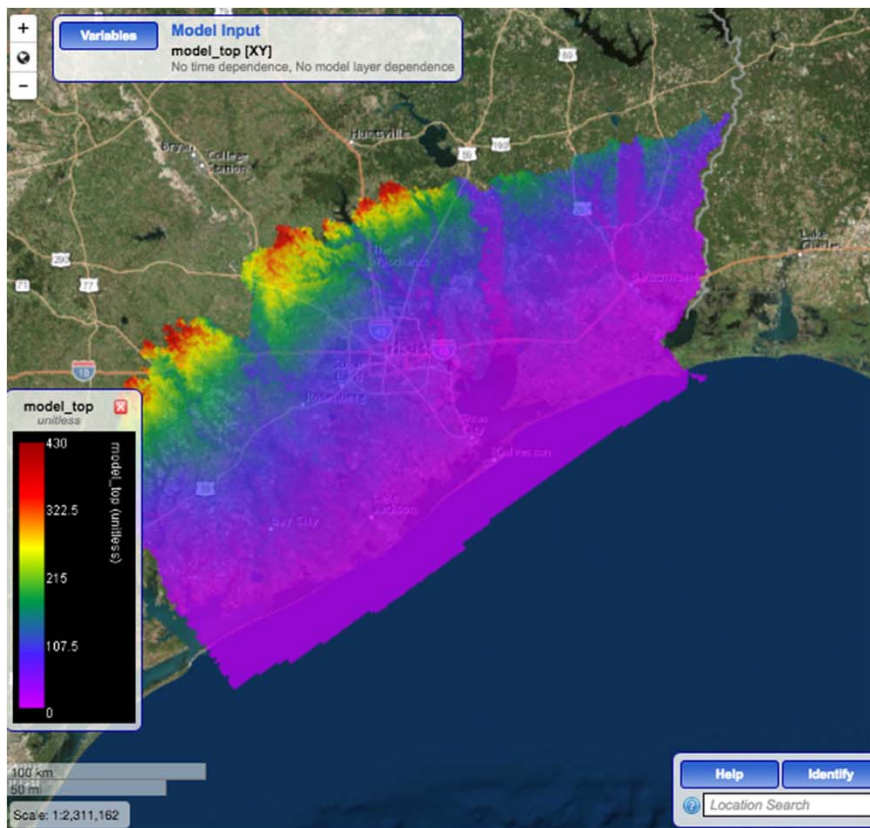
REUSABLE
(language
agnostic)

The screenshot displays the GWWebFlow application interface. The main map shows a simulated water-level versus depth plot, with a color-coded legend indicating horizontal hydraulic conductivity (K_h) values ranging from 1.07E-3 to 1.96E4. The map is overlaid with a grid of model cells, and a specific cell is highlighted. The interface includes a 'Model Input' panel on the left, a 'Model Output' panel on the right, and a 'Time Series Plot' panel at the bottom right. The 'Model Input' panel shows variables such as 'horizontal hydraulic conductivity (K_h)' and 'layer bottom (K_h)'. The 'Model Output' panel shows the 'head' variable. The 'Time Series Plot' panel displays a line graph of head (feet) versus time (years) for a specific model cell.

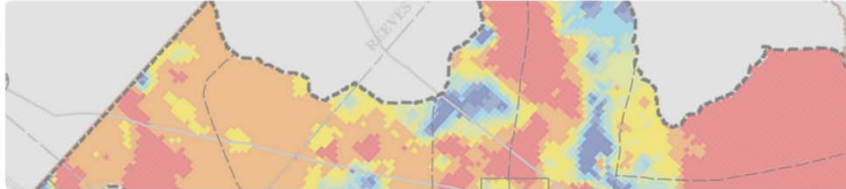
Annotations on the image identify key components:

- model input/output**: Points to the 'Model Input' and 'Model Output' panels.
- model variable**: Points to the 'horizontal hydraulic conductivity (K_h)' variable in the 'Model Input' panel.
- model layer**: Points to the 'layer bottom (K_h)' variable in the 'Model Input' panel.

The main map area is titled **SIMULATED WATER-LEVEL VERSUS DEPTH**. The bottom right panel is titled **SIMULATED WATER-LEVELS OVER TIME AT A MODEL CELL**.



GWWebFlow



Rerun Status

Run ID: 1470151488724
Date Submitted: Tue Aug 02 2016 10:24:48 GMT-0500 (CDT)
Elapsed Time Since Submission: 5 days, 0 hours, and 52 minutes

Status: MODEL RUN COMPLETE

Great news! Your model is finished and is ready for viewing and download.

NOTICE: Because of space limitations, your model results are only kept for 30 days.

[View Results](#) [Download Results](#)

Completed Log File:

2016-08-02 10:48:13.667000	finished: applying self mask took: 0:00:00.031000
2016-08-02 10:48:13.667000	starting: applying other mask
2016-08-02 10:48:13.698000	finished: applying other mask took: 0:00:00.031000

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