PyHIS
A cross-platform Python toolkit to access HIS data

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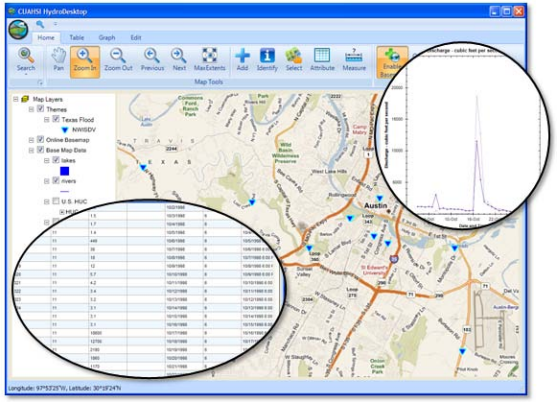
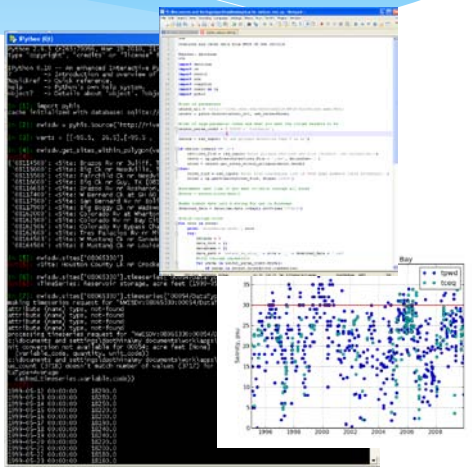
Texas Water Development Board

Getting Water Data from CUAHSI-HIS

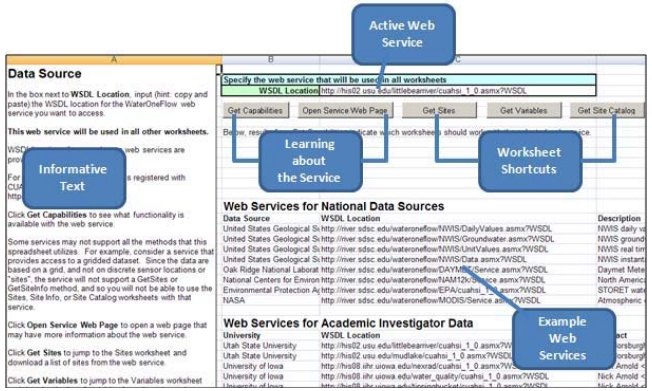


HydroDesktop



PyHIS

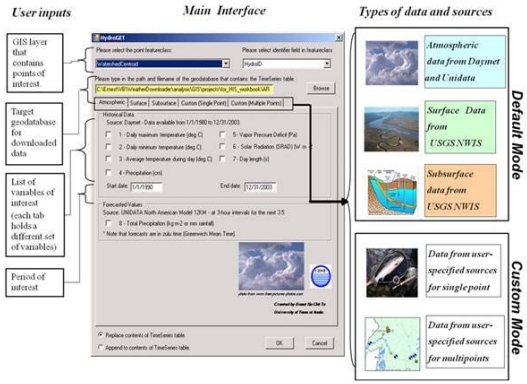
CUAHSI HIS
Sharing hydrologic data
Home | How To | Components



HydroExcel

Learn:
SOAP
XML
WaterOneFlow
WaterML

Custom Software



HydroGet

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Why do we need another tool?

Access from Linux / Mac OS X

GUI's not the best interface for certain workflows
(ex. data harvesting, automated analysis)

SOAP is what I use in the shower
and XML makes my head hurt

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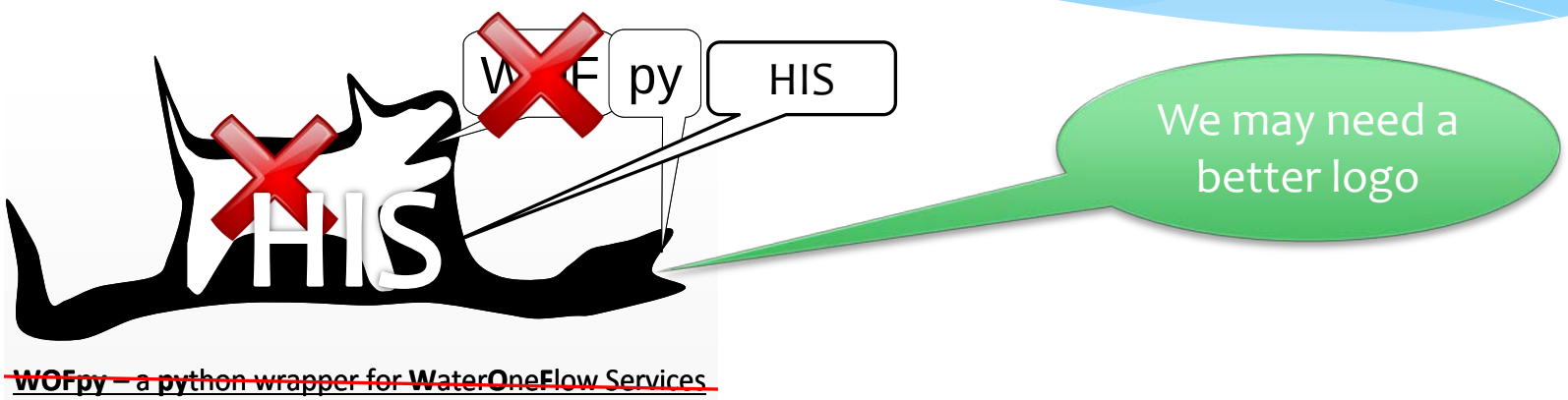
PyHIS



~~**WOFpy** – a **py**thon wrapper for **W**ater**O**ne**F**low Services~~

PyHIS - A cross-platform **Py**thon toolkit to access **HIS** data

Python is a cross-platform programming language that has many scientific modules

PyHIS uses Python to implement a *medium-level* access to HIS data

Low enough to build flexible workflows and scripts and for use as a back end in larger applications

High enough to not have to know anything about: Web Services/SOAP/XML/WOF/WaterML/@#!%$&

think of a Matlab or R type interface

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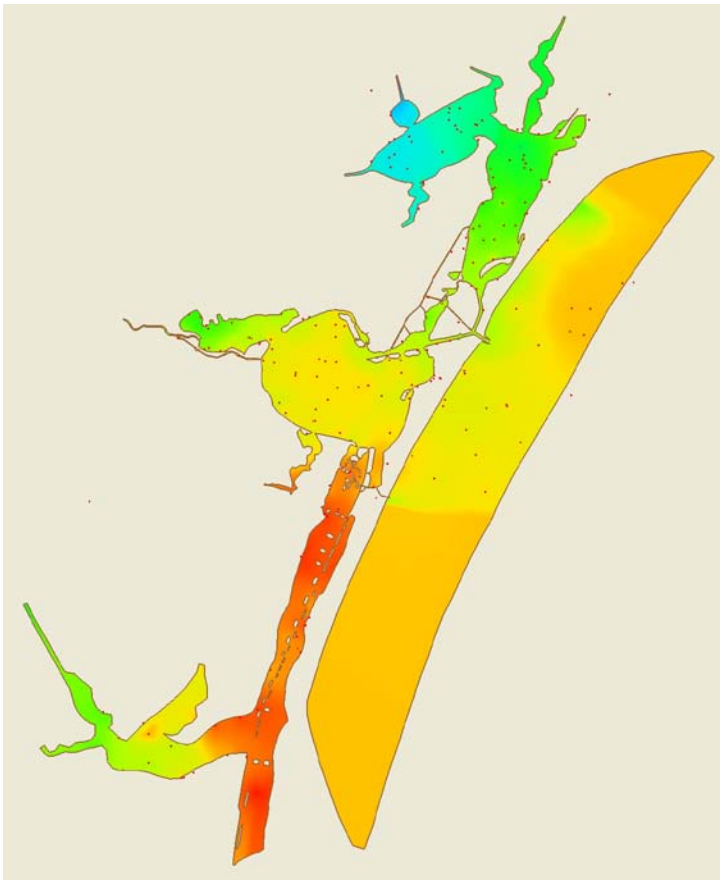
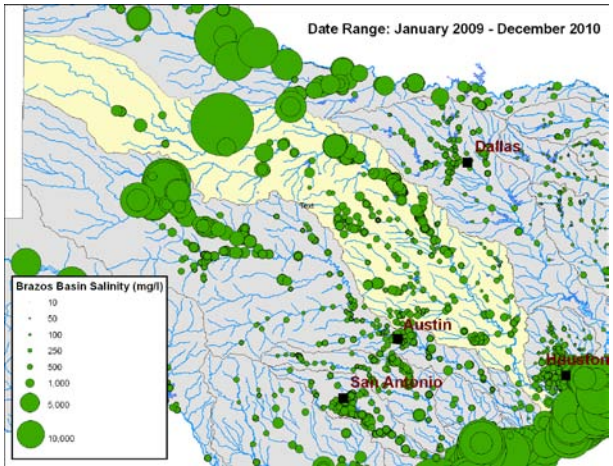
Features

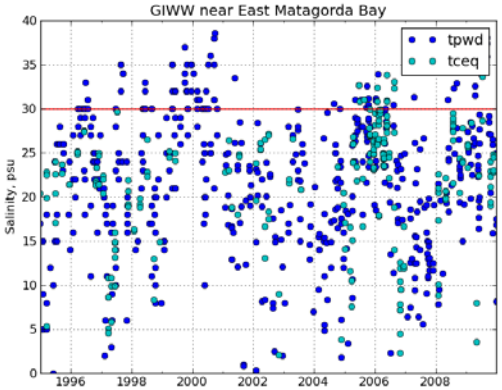
- Cross-platform. Works on Windows, Linux and Mac OS X
- Returns data in *pandas* data structures. Pandas is a powerful Python data analysis toolkit that allows for time series analysis, statistical analysis and plotting.
- Easy export of data to csv and hdf5 formats
- Scriptable for custom workflows
- Includes convenience functions for common tasks
- Automatic caching of data to a local database (sqlite by default, others can be used)
- *Lazy Loading* automatically determines what webservice calls are requires for a particular request and makes them as needed
- Open Source, BSD License.

What is PyHIS being used for?

- Backend for *Water Data for Texas* web portal
- Backend for revamped TWDB Statewide Lake website
- Hydrodynamic model vs field data comparisons
- Salinity initial conditions for hydrodynamic models
- Statewide spatial analysis.
- Caching external data that is available for a limited time window. (Ex. USGS NWIS Instantaneous Values Service)







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demo

- Follow along at http://packages.python.org/pyhis/tutorial.html

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Future work

- Improve documentation and tutorial
- On the fly, automatic unit conversions
- More convenience functions for common tasks/analyses
- Bug fixes

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availability

- Available on the Python Package Index (PyPI):
  http://pypi.python.org/pypi/pyhis
- Development version available on GitHub:
  https://github.com/swtools/pyhis
- Considered *alpha* quality. Needs better tests and documentation, API may change. Works for HIS services we are interested in (Please report any bugs to us).
- Collaboration welcomed for both WOFpy and PyHIS.
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