



Time Series Data Editor





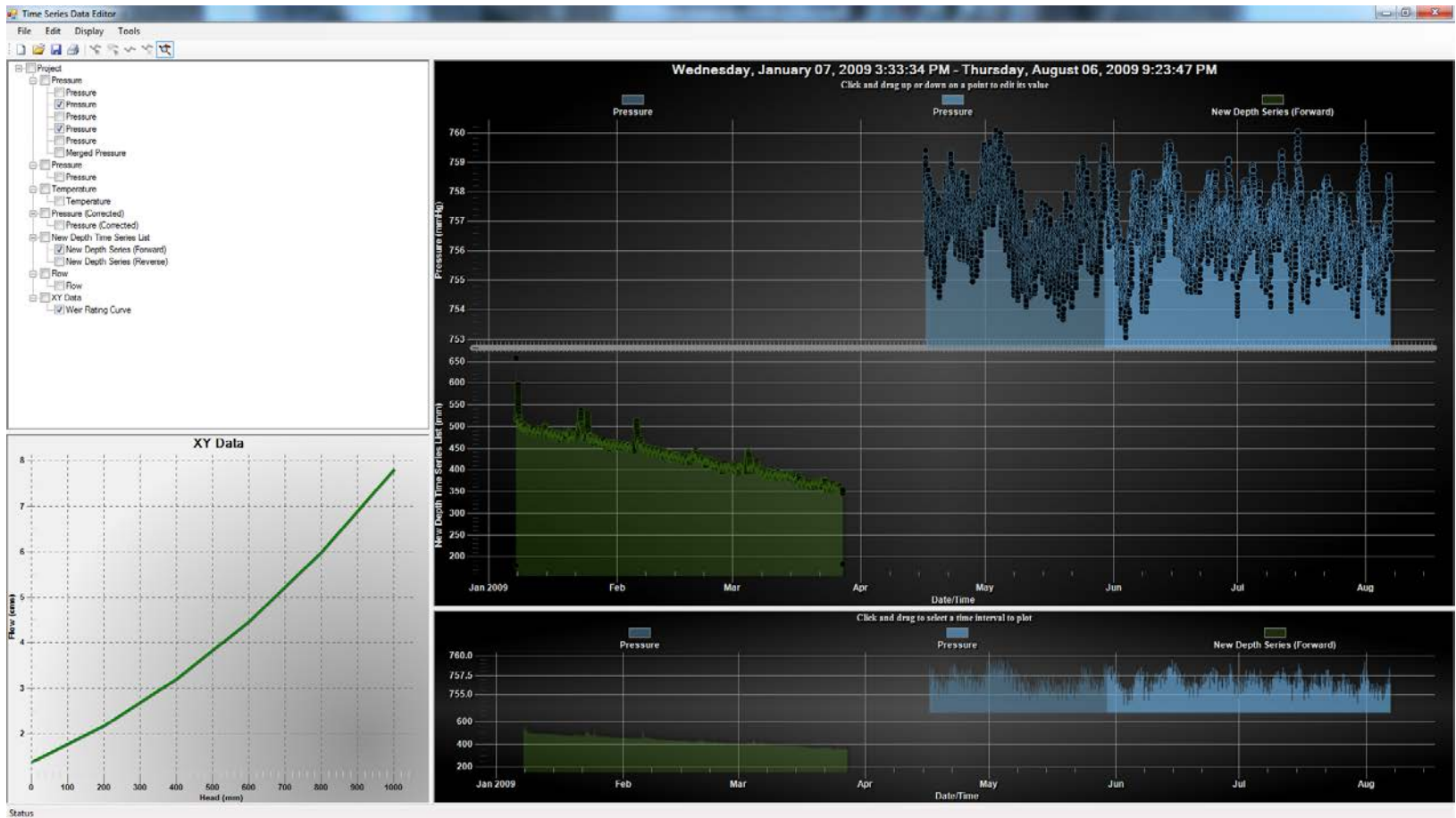
Background

- Started with Fred Ogden's difficulty in finding a tool for custom time series editing
- Some of his specific needs for this tool were:
 - Interpolation
 - Time series correction using observed data
 - Time series shifting
 - A user friendly and point and click interface for the graphing component
 - Depth curve calculation
 - Time series trimming
 - And some other custom functions





Time Series Data Editor Interface





- It has evolved into a multi-purpose time series files manipulation tool handling several file types including
 - GSSHA files
 - .HMET
 - .CSV
 - .TXT
 - .XYS
 - .DSS
 - And a few other file types





All purpose file import wizard

Watershed Management and Modeling

Import File Wizard

File Import Options

☐ Delimited
☒ Fixed Width

Set Column Delimiters

☒ Tab ☐ Space ☐ Semi Colon ☐ Comma ☐ Other

☐ Treat consecutive delimiters as one ☐ Skip leading delimiters

Start Import at Row 1 ☐ Heading Row

Read Data | Map Fields

date	hour	press	rel_hum	sky_cover	wind_spd	temp
20010823	0000Z	29.90	61	7	1901KT	32
20010823	0100Z	29.92	61	4	2000KT	29
20010823	0200Z	29.93	73	4	2000KT	27
20010823	0300Z	29.92	73	4	2100KT	27
20010823	0400Z	29.93	78	4	2300KT	26
20010823	0500Z	29.94	78	4	2200KT	26
20010823	0835Z	30.00	88	7	VRB05KT	22
20010823	0900Z	30.02	88	7	VRB04KT	22
20010823	1000Z	30.04	88	7	VRB04KT	22
20010823	1100Z	30.03	88	7	VRB02KT	22
20010823	1200Z	30.04	88	7	2400KT	22
20010823	1300Z	30.02	83	7	2000KT	23
20010823	1400Z	30.01	78	7	VRB06KT	24
20010823	1500Z	30.04	73	7	VRB04KT	25
20010823	1600Z	30.06	65	7	VRB02KT	28
20010823	1700Z	30.06	69	7	VRB04KT	27
20010823	1800Z	30.05	69	7	VRB03KT	27
20010823	1855Z	30.04	65	7	VRB03KT	28
20010823	1900Z	30.04	65	7	VRB05KT	28
20010823	2000Z	30.04	61	8	VRB01KT	28
20010823	2100Z	30.05	69	8	3400KT	26
20010823	2121Z	30.04	83	8	VRB05KT	25
20010823	2142Z	30.04	83	8	VRB05KT	28
20010823	2200Z	30.04	88	7	0200KT	25
20010823	2300Z	30.03	78	7	VRB04KT	25
20010823	2330Z	30.02	78	8	VRB02KT	25
20010824	0000Z	30.02	88	8	VRB02KT	24
20010824	0016Z	30.02	88	8	VRB02KT	24
20010824	0100Z	30.02	88	8	VRB03KT	23
20010824	0200Z	30.02	100	8	VRB05KT	22
20010824	0300Z	30.03	100	8	0900KT	22
20010824	0345Z	30.03	100	8	3600KT	22
20010824	0400Z	30.03	100	8	0200KT	22
20010824	0445Z	30.03	100	8	0800KT	22
20010824	0500Z	30.02	100	8	0400KT	22
20010824	0600Z	30.03	94	8	0201KT	22
20010824	0700Z	30.04	100	8	3400KT	21
20010824	0800Z	30.04	100	8	0600KT	21
20010824	0841Z	30.04	100	8	0500KT	21
20010824	0900Z	30.04	100	8	VRB05KT	21
20010824	0935Z	30.03	100	8	0700KT	21
20010824	1000Z	30.02	94	8	VRB04KT	22
20010824	1013Z	30.03	94	8	0900KT	22

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Time Series List

HMET

Mapping Values

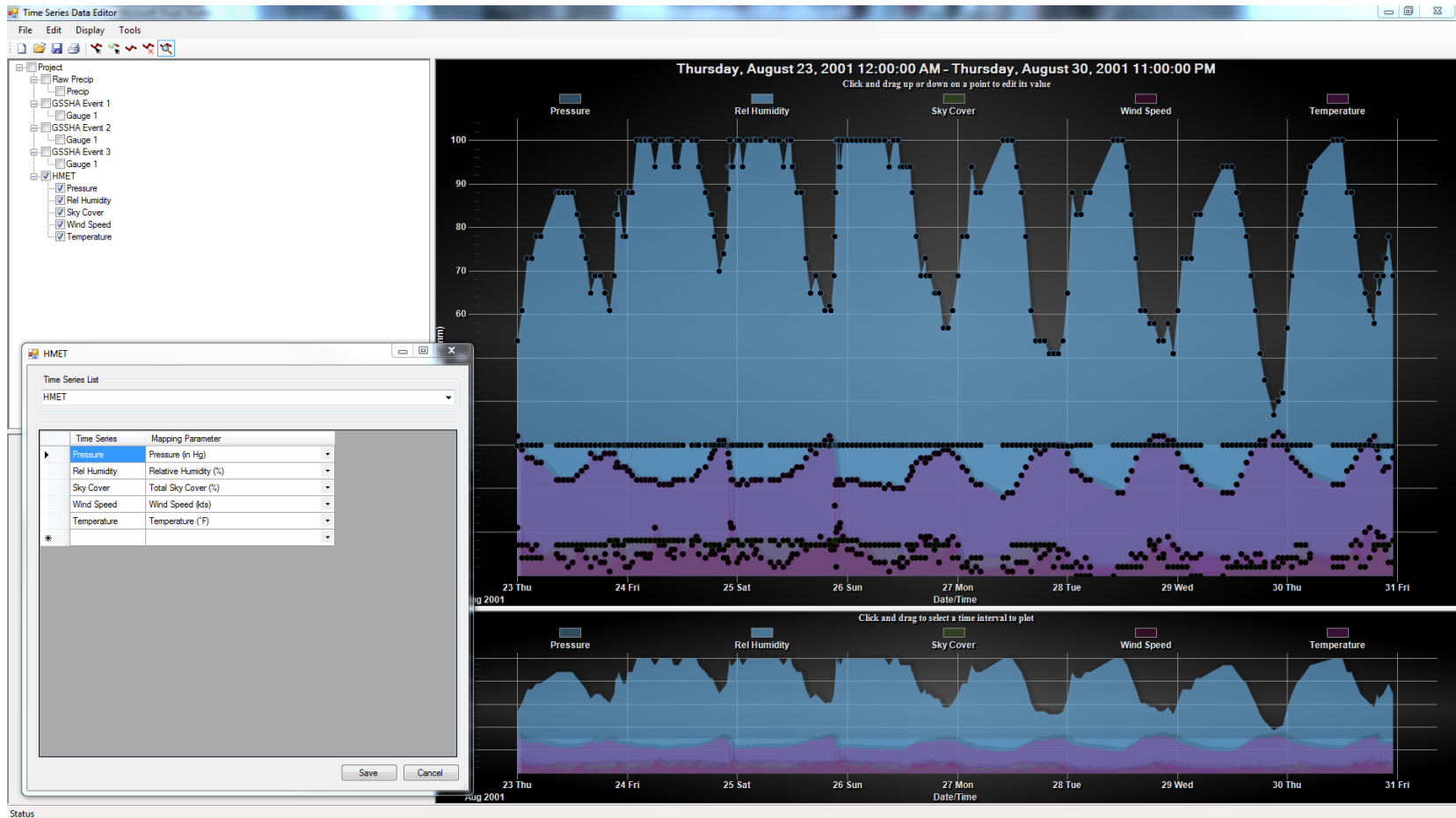
Unit	Year	Month	Day	Hour	Minute	Value	Value	Value	Value	Value	Value
Unit						Pa	%	%		kt	Celsius
Names						Pressure	Humidity	Sky Cover		Wind Speed	Temperature

Column 0	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13
2001	08	23	00	00	Z	29.90	54	7	190	11	KT	32	
2001	08	23	01	00	Z	29.92	61	4	200	07	KT	29	
2001	08	23	02	00	Z	29.93	73	4	200	07	KT	27	
2001	08	23	03	00	Z	29.92	73	4	210	06	KT	27	
2001	08	23	04	00	Z	29.93	78	4	230	07	KT	26	
2001	08	23	05	00	Z	29.94	78	4	220	04	KT	26	
2001	08	23	08	35	Z	30.00	88	7	VRB	05	KT	22	
2001	08	23	09	00	Z	30.02	88	7	VRB	04	KT	22	
2001	08	23	10	00	Z	30.04	88	7	VRB	04	KT	22	
2001	08	23	11	00	Z	30.03	88	7	VRB	02	KT	22	
2001	08	23	12	00	Z	30.04	88	7	240	03	KT	22	
2001	08	23	13	00	Z	30.02	83	7	200	06	KT	23	
2001	08	23	14	00	Z	30.01	78	7	VRB	06	KT	24	
2001	08	23	15	00	Z	30.04	73	7	VRB	04	KT	25	
2001	08	23	16	00	Z	30.06	65	7	VRB	02	KT	28	
2001	08	23	17	00	Z	30.06	69	7	VRB	04	KT	27	
2001	08	23	18	00	Z	30.05	69	7	VRB	03	KT	27	

Back Find OK



HMET File generation dialog



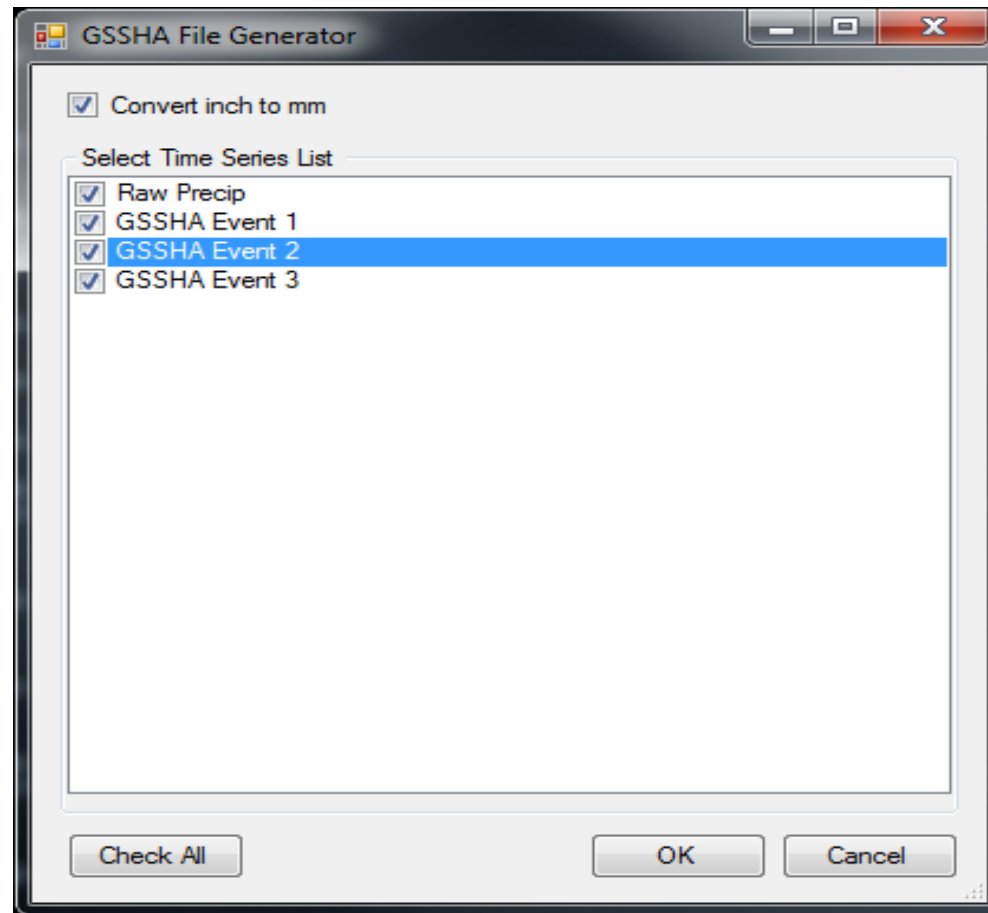


Splitting rainfall events





GSSHA gage file generation





CUAHSI-HIS Component

- Interdisciplinary and inter-agency system for sharing environmental monitored datasets over the internet using standardized protocols and ontology
- Includes several universities across the country
- Organizations like the USGS, NOAA, EPA are on board
- Their framework consists a series servers and free tools most of which are in their developmental stages for downloading and analyzing the data
- We have included a tool in the time series editor to tap into this system





CUASHI-HIS in Time Series Editor

Watershed Management and
Modeling

CUASHI DATA DOWNLOAD

MODIFY SERVICES

SEARCH FOR DATA

1. Select Data Service 2. Parameters 3. Date Range 4. Search Extent 4.Download Data

Service

☐ Search in HIS Central ☒ Saved Services

Select Services

ServiceCode	ServiceName	ServiceType	Version	Protocol	Endp
LoganRiverObservations	WaterOneFlow	CUAHSI	1	SOAP	http://
MudLakeObservations	WaterOneFlow	CUAHSI	1	SOAP	http://
TWDBSondes	WaterOneFlow	CUAHSI	1	SOAP	http://
TWDBQuality	WaterOneFlow	CUAHSI	1	SOAP	http://
TPWDCoastal	WaterOneFlow	CUAHSI	1	SOAP	http://
SabineBio	WaterOneFlow	CUAHSI	1	SOAP	http://
BlancoBio	WaterOneFlow	CUAHSI	1	SOAP	http://
ODM	WaterOneFlow	CUAHSI	1	soap	http://
TWDBTides	WaterOneFlow	CUAHSI	1	soap	http://
TWDBWind	WaterOneFlow	CUAHSI	1	soap	http://
TRACS	WaterOneFlow	CUAHSI	1	soap	http://
Percidae	WaterOneFlow	CUAHSI	1	soap	http://
TxEvap	WaterOneFlow	CUAHSI	1	soap	http://
NWSMPE	WaterOneFlow	CUAHSI	1	soap	http://
TCOON	TCOON	CUAHSI	1	soap	http://
SanAntonioBio	WaterOneFlow	CUAHSI	1	soap	http://
unknown	WaterOneFlow	CUAHSI	1.1	soap	http://
servcode-973334183	WaterOneFlow	wateroneflow	1	protocol973334183	url:97

Next

Streets Topo Imagery Shaded Relief Physical World

Longitude : -112.565161733 Latitude : 40.495742752

9 Kilometers



Capabilities

- Allows us to tap into databases from agencies like the USGS, NOAA, the dreaded EPA's STORET and many others to obtain almost real-time data.
- We can tap into servers from academic institutions who are on board with CUAHSI
- Automatic generation of the various time series file formats from downloaded data
- A mapping interface using the latest Rich Internet Applications (RIA) framework
- Geocoding capabilities to locate addresses quickly and define boundaries for data download.





Data downloading process

Watershed Management and Modeling

- Select a service or a server to download the data from

CUASHE DATA DOWNLOAD

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ServiceCode	ServiceName	ServiceType	Version	Protocol	Endp
LoganRiverObservations	WaterOneFlow	CUAHSI	1	SOAP	http://
MudLakeObservations	WaterOneFlow	CUAHSI	1	SOAP	http://
TWDBSondes	WaterOneFlow	CUAHSI	1	SOAP	http://
TWDBQuality	WaterOneFlow	CUAHSI	1	SOAP	http://
TPWDCoastal	WaterOneFlow	CUAHSI	1	SOAP	http://
SabineBio	WaterOneFlow	CUAHSI	1	SOAP	http://
BlancoBio	WaterOneFlow	CUAHSI	1	SOAP	http://
ODM	WaterOneFlow	CUAHSI	1	soap	http://
TWDBTides	WaterOneFlow	CUAHSI	1	soap	http://
TWDBWind	WaterOneFlow	CUAHSI	1	soap	http://
TRACS	WaterOneFlow	CUAHSI	1	soap	http://
Percidae	WaterOneFlow	CUAHSI	1	soap	http://
TXE vap	WaterOneFlow	CUAHSI	1	soap	http://
NWSMPE	WaterOneFlow	CUAHSI	1	soap	http://
TCOON	TCOON	CUAHSI	1	soap	http://
SanAntonioBio	WaterOneFlow	CUAHSI	1	soap	http://
unknown	WaterOneFlow	CUAHSI	1.1	soap	http://
unknown	WaterOneFlow	CUAHSI	1	soap	http://
servcode-973334183	WaterOneFlow	wateroneflow	1	protocol973334183	uri:97

Next

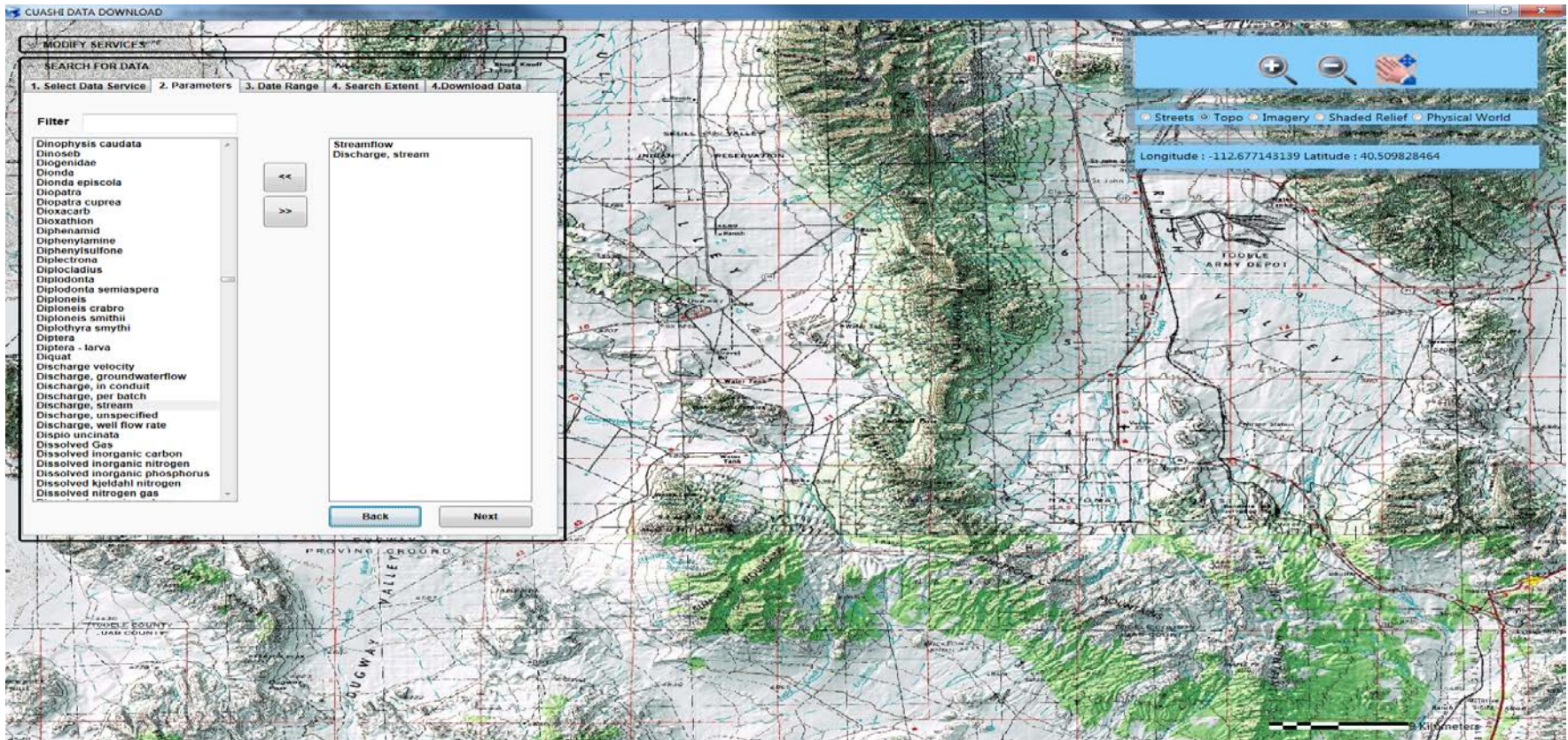
Map interface showing a topographic map of the Wasatch-Cache National Forest area. The map includes labels for "Wasatch-Cache National Forest", "Tooele Army Depot South", and "Juab County". A scale bar indicates 9 Kilometers. The map also shows a coordinate display: Longitude : -112.632773148 Latitude : 40.495038467. Map controls include a search bar, zoom in/out buttons, and a layer selection menu with options: Streets, Topo, Imagery, Shaded Relief, Physical World.



Data downloading process

Watershed Management and Modeling

- Select parameters to search for e.g. Stream flow , dissolved oxygen





Data downloading process

Watershed Management and Modeling

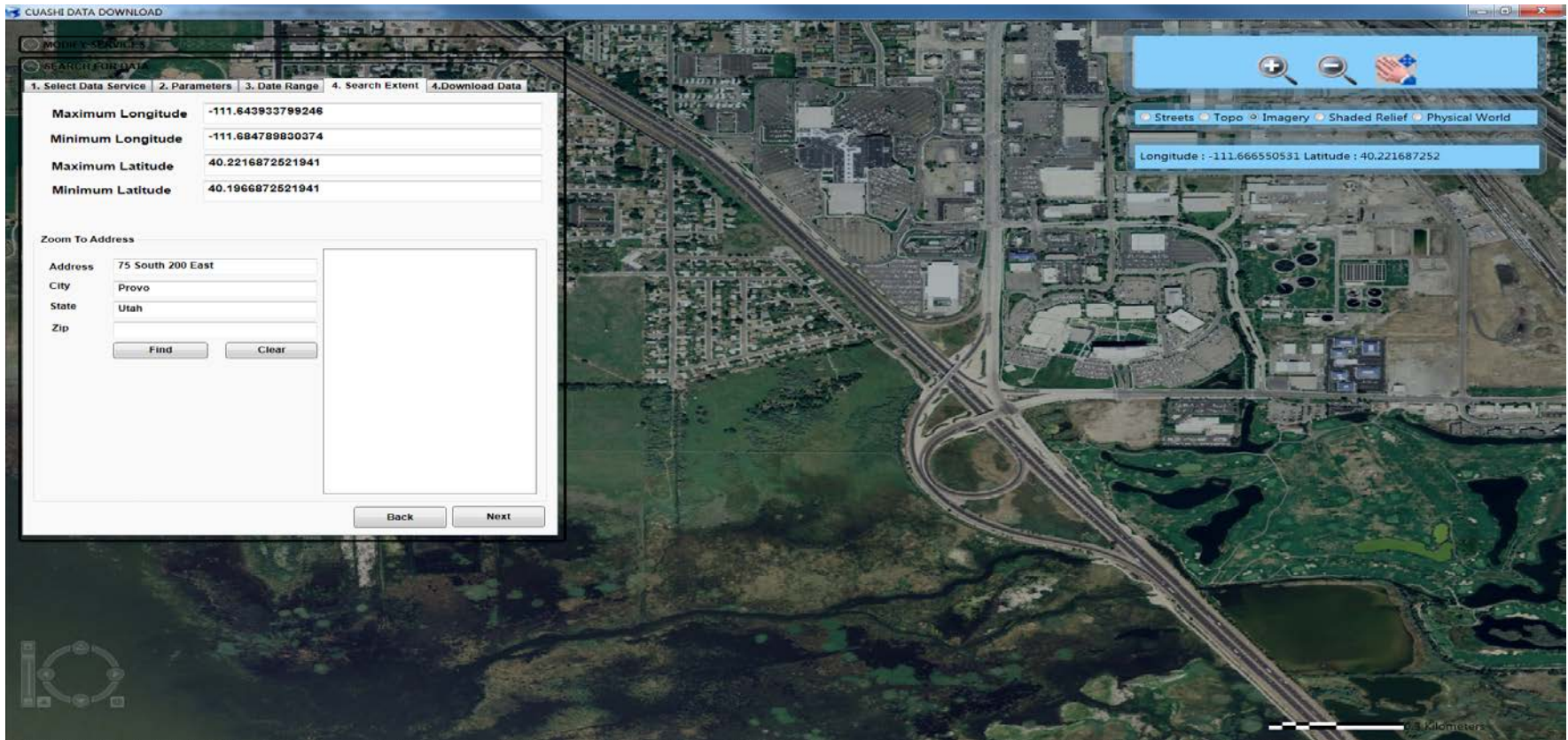
- Select period



Data downloading process

Watershed Management and Modeling

- Select search geographic extent

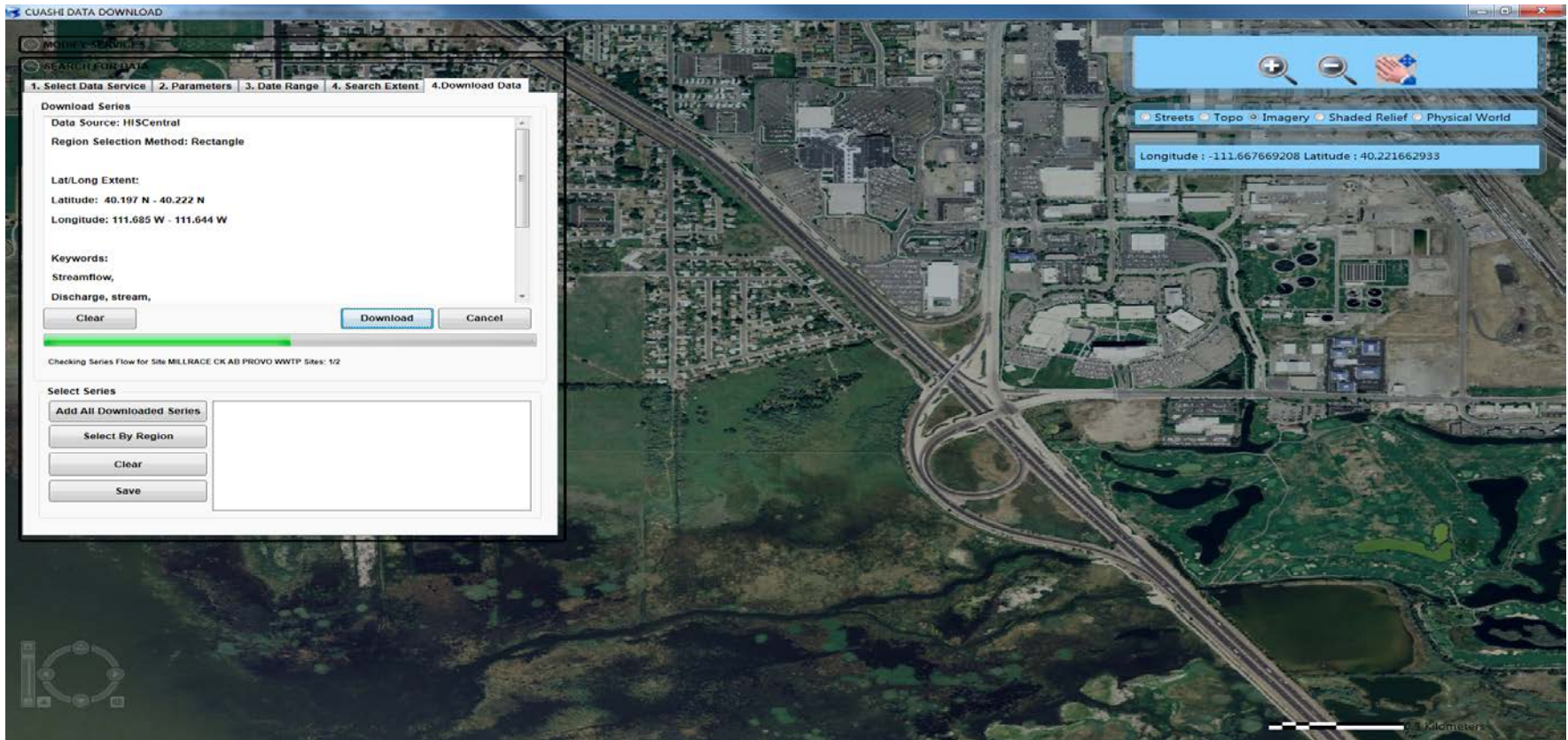




Data downloading process

Watershed Management and Modeling

- Download data





Downloaded data

