

National Geodetic Survey

Geospatial tools for addressing disaster management, coastal settlements & climate change issues

FIG Working Week 2007
Hong Kong

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National Oceanic and Atmospheric Administration

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Why are geospatial tools important for addressing issues along the coasts?

Updated range of projected sea level rise in 2007 IPCC preliminary summary report

Upper Bound 0.60 m
Median Value for Projected Sea Level Rise by 2100 -0.40 m
Lower Bound 0.18 m

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What do you need to develop geospatial tools for addressing coastal issues?

- Water level data
- Geodetic Data
- Geophysical data
- Models
- Transformation programs
- GIS applications

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Water Level Data

Tidal datums are measured by observing tidal variations at a specific location over 18.6 years

- Local Mean Sea Level (MSL) is the average of all the observed tides.
- Mean High Water (MHW) is the average of all of the observed high tides.
- Mean Lower Low Water (MLLW) is the average of the lowest of all the observed low tides.

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Geodetic Data

- Heights measured by GPS are relative to the ellipsoid.
- Heights measured by differential leveling are relative to the geoid
- The National Vertical Datum for the United States is the North American Vertical Datum of 1988 (NAVD88)

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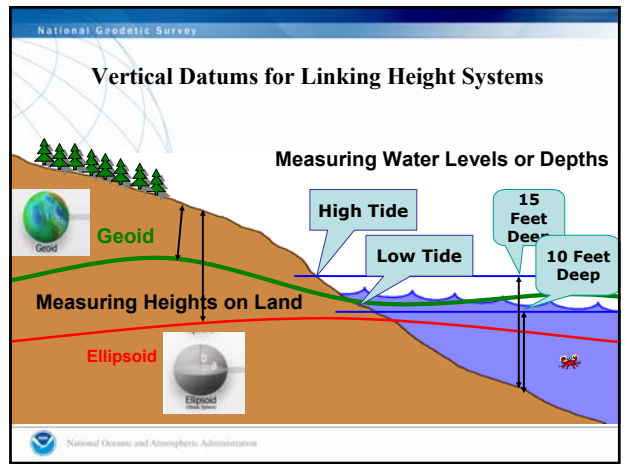
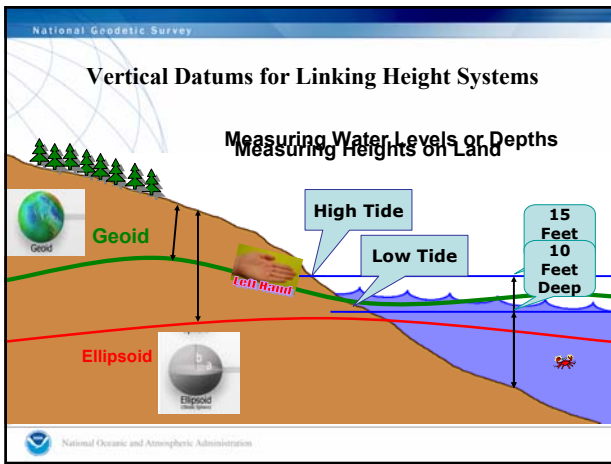
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Geophysical Data and Models

United States Gravimetric Grid for 2001 (USGG2001)

- Gravity Data
- Satellite Models
- Crustal Density Data
- Digital Elevation Models

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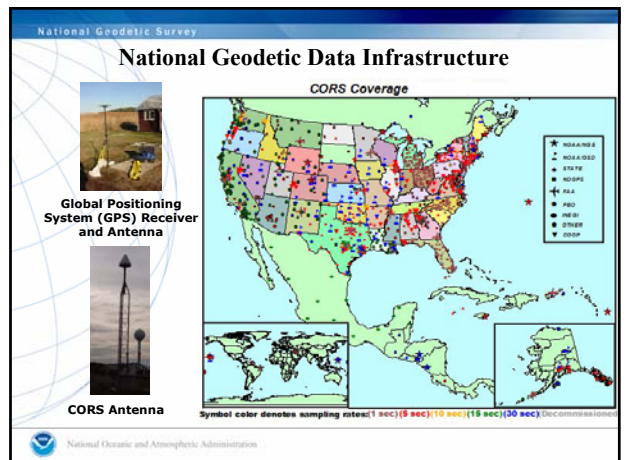
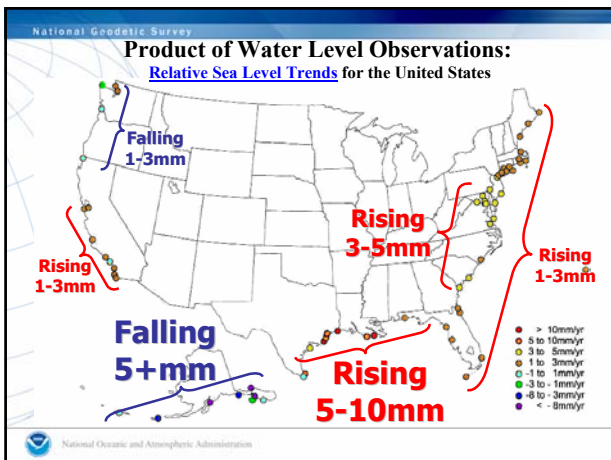
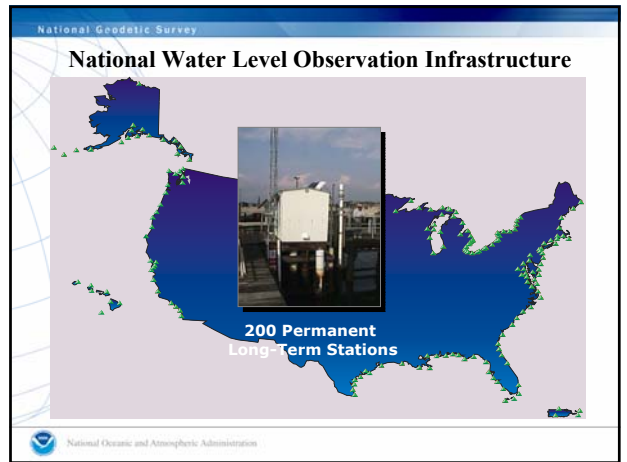
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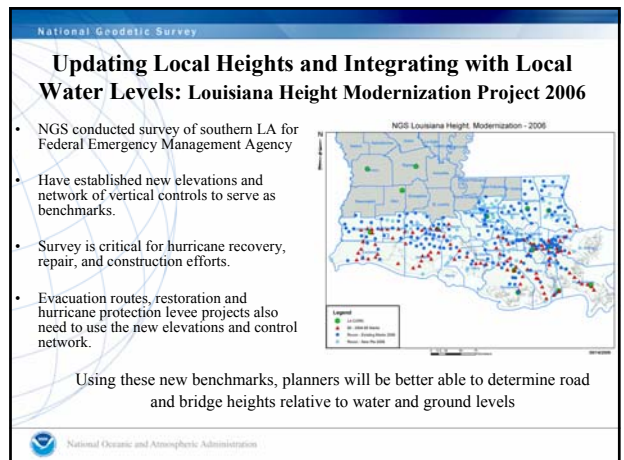
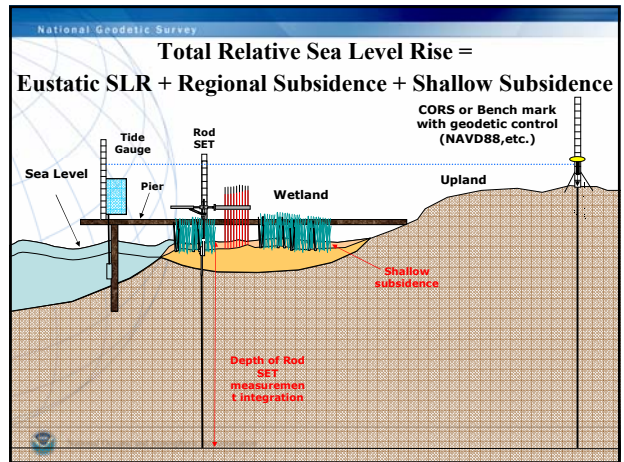
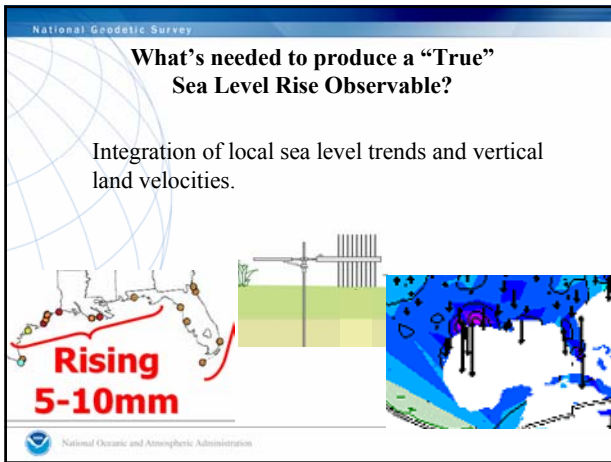
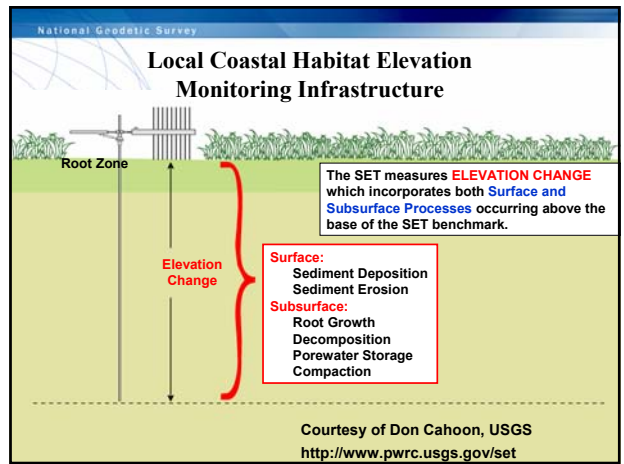
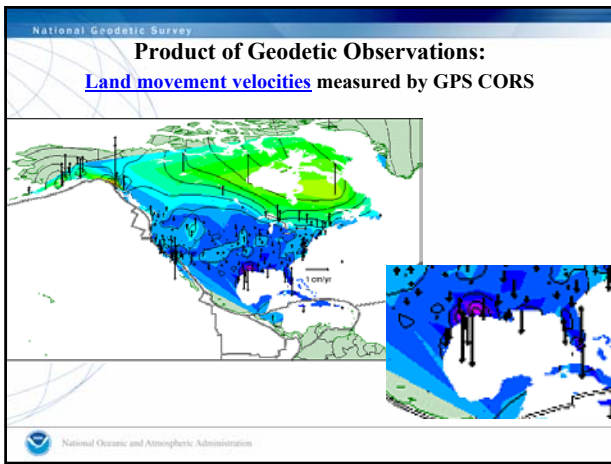
Benefits of Geospatial Tools

Promote safe, efficient and environmentally friendly commerce and transportation

- Provide ships with safe under-keel and overhead clearance to avoid dangerous collisions
- Help airplanes to land safely
- Assist safety planners with storm evacuation routes
- Monitor the effects of climate change

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Benefits of Accurate Heights for Floodplain Mapping

Help Determine Who Needs Flood Insurance:

- Make sure that those who need it, have it.

&

- Those who don't need it, don't have to pay for it.

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Benefits of Accurate Heights for Evacuation Route Planning

- Alert safety planners to storm evacuation routes that are slowly sinking and susceptible to storm surges.

hurrevac.com

What's New

We have a new site for **SWL** and **Coastal Elevation** which is not supported but free as an add-on for this reason.

The **SWL** software now **handles Interactive Tracking** for storm surge models. See [SWL](#) at [www.hurrevac.com](#).

Need Training on **hurrevac**? See [SWL](#) Training [SWL](#) for available training materials.

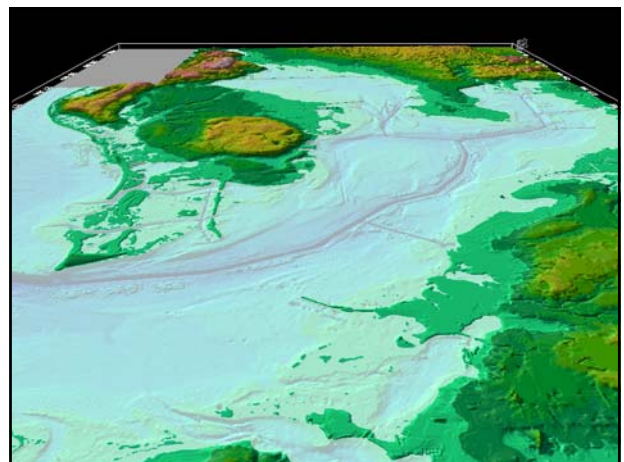
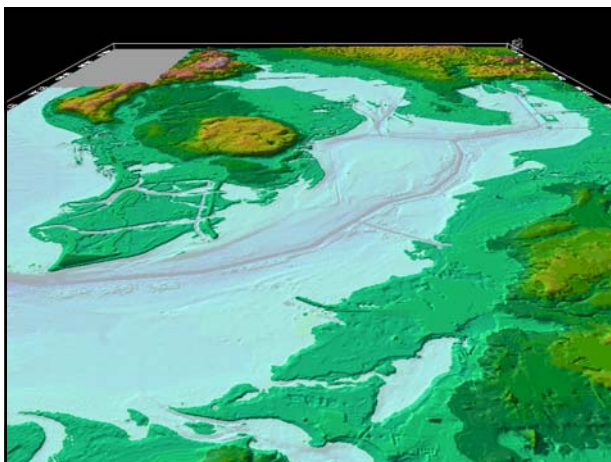
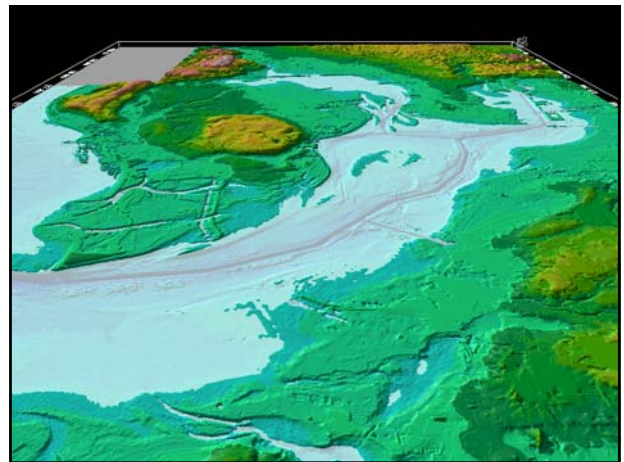
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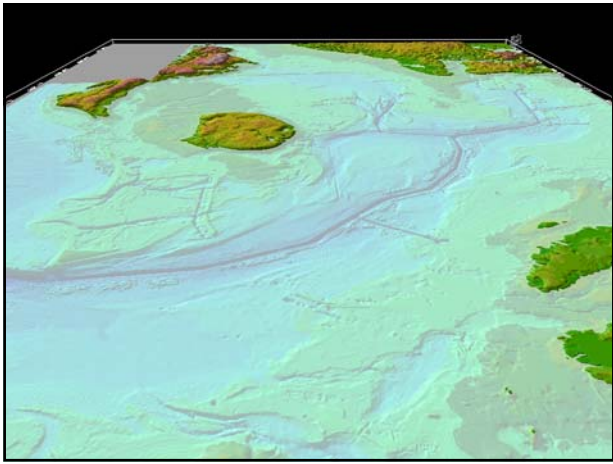
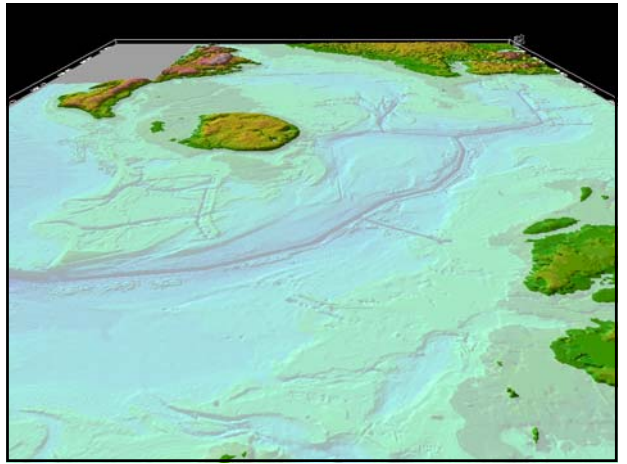
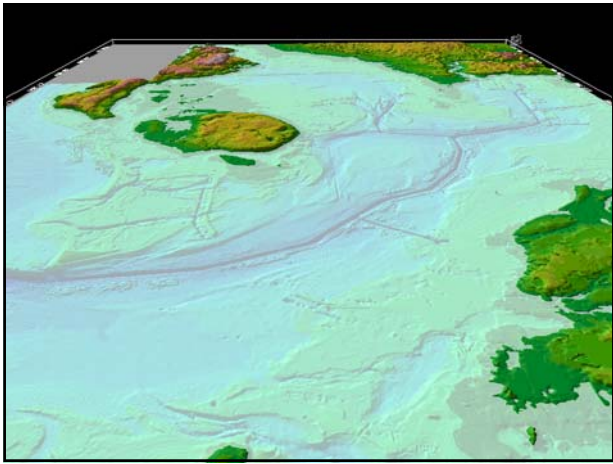
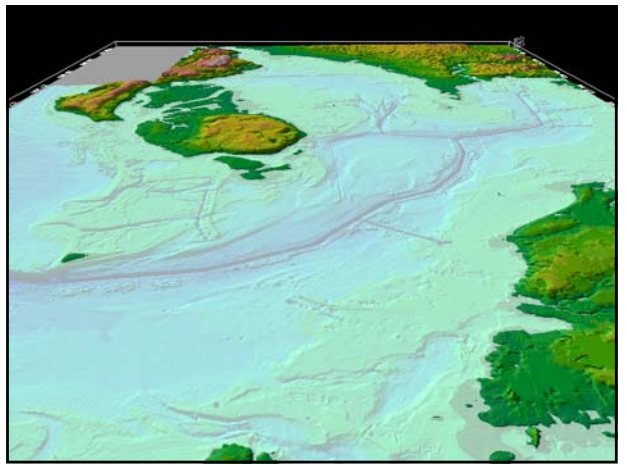
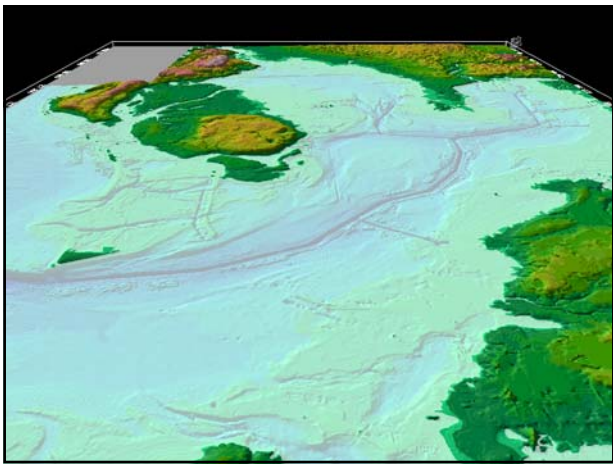
VDatum Vertical Datum Transformation Tool

The Datum Transformation Roadmap

<http://www.nauticalcharts.noaa.gov/csdl/vdatum.htm>


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Questions?



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