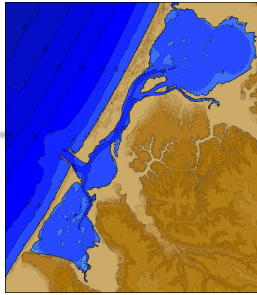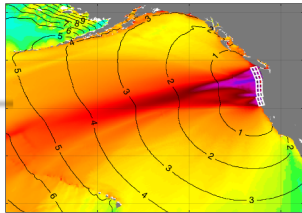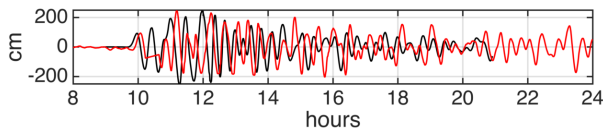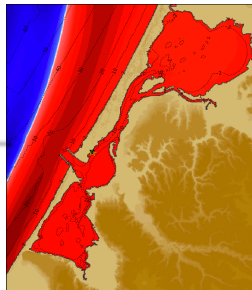## ComMIT Workflow



Bathymetry for the region is created at the scale of a port or harbor.



The source of a tsunami is selected from the NOAA Propagation Database, or a custom source is run.
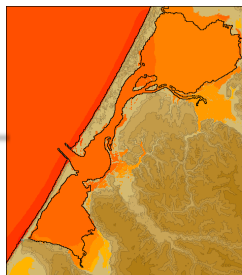


Inundation, or flooding, is forecast using models that are run with the selected tsunami source.



Model results are compared with data recorded by tide gauges for past tsunamis to check how well models are predicting tsunami impact.



Results from multiple model runs can be merged and exported to map-making tools.

## References

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Synolakis, C.E., E.N. Bernard, V.V. Titov, U. Kânoğlu, and F.I. González (2007): Standards, criteria, and procedures for NOAA evaluation of tsunami numerical models. NOAA Tech. Memo. OAR PMEL-135, NOAA/Pacific Marine Environmental Laboratory, Seattle, WA, 55 pp.

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## Contact

For more information about ComMIT, please visit website:

http://nctr.pmel.noaa.gov/ComMIT/

NOAA Center for Tsunami Research
nctr.pmel.noaa.gov

# ComMIT

Community Model Interface for Tsunami

Interface to the NOAA Tsunami Flooding Capability in Support of Mitigation and Education

## ComMIT Overview

The Community Model Interface for Tsunami (ComMIT) was developed in response to a recommendation by the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System in December 2005. The vision was to provide global access to community-developed tsunami models for the exchange of modeling expertise, hazard assessment, mitigation, and tsunami forecasting capabilities initially between Indian Ocean Countries. Design and development focused on ease of use, portable technology, functionality, wide-scale accessibility, and results sharing, without disclosure of propriety bathymetry and topography data.

Written in the Java programming language, ComMIT is platform independent (i.e. runs with MS WINDOWS, MAC OS, and UNIX). The only requirements for use are adherence to a standard network Common Data Format (netCDF) and that input parameters be read from a simple text (ASCII) file. NetCDF provides access to open-source software for data analysis and model output presentation.

ComMIT is a graphical user interface through which flooding from a tsunami along any coast can be modeled. Tsunami models require: (1) seafloor and coastal topography; (2) initial and boundary conditions; and (3) run-specific model information, such as time-step, spatial resolution, and run length. ComMIT enables users to select these inputs, initiate tsunami model runs, and display results graphically for different models alone or in combination. Currently, ComMIT provides default access to Method of Splitting Tsunamis (MOST) numerical codes.

As of 2015, nearly 400 people from 57 nations have been trained to use ComMIT, providing a community of modelers using ComMIT to conduct new and updated hazard assessments for mitigation and education planning.

## The ComMIT Interface

The ComMIT interface consists of a Start Model button, Progress Bar, and Model Run selector along the top of the interface main window panel. Five tabs, Model Setup, Initial Condition, Grid Bathymetry, Results Animation, and Results Extrema, provide displays of run-specific input and results.
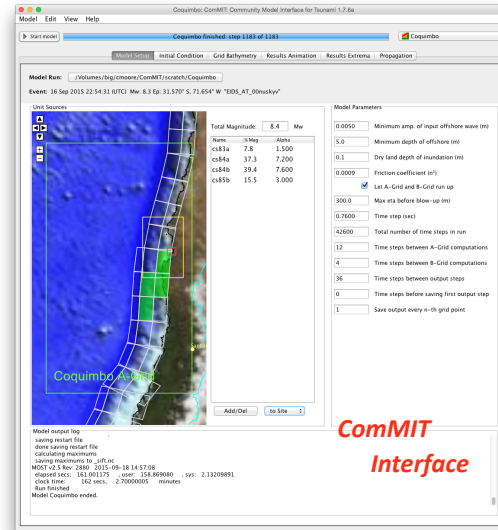


**Model Setup** shows the location of the open Model Run. MOST model parameters for the run are set manually in the upper-right frame of the Model Setup tab.

**Initial Condition** shows maximum wave amplitude and arrival time (in hours) results from the model setup parameters and user-selected tsunami source.

**Grid Bathymetry** shows a color contour plot of grid bathymetry.

**Results Animation** shows the full time-dependent model results, including wave amplitude, velocity and time series.

**Results Extrema** shows the model results as either the Maximum Wave Amplitude over time, the Minimum Wave Amplitude, or the Maximum Wave Speed. Results can be shared with other ComMIT users or with forecasters through the NOAA Tweb application.

## Results Animation

A selector on the left allows the user to display results at each of three resolutions (grids A,B,C). The main panel shows a color contour plot of wave amplitude superimposed on contours of bottom bathymetry and topography in shades of tan and brown.
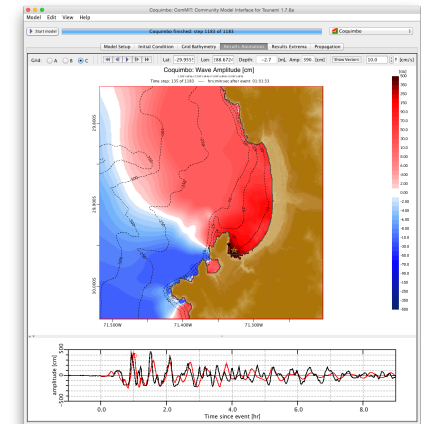


Example ComMIT graphical display of wave amplitude and time series. Users have the option of displaying time-dependent wave amplitude, currents, and time series at a nearby tide gauge for comparison with observations.

## Results Extrema

Maximum or minimum tsunami amplitude or maximum wave speed are displayed depending on user selection. Menu options are Max Amp, Min Amp, or Max Speed. A mouse-over feature shows longitude, latitude, depth, and amplitude along the top of the frame.