



**EGI-Engage**

## ***iCOMCOT Web Portal User's Guide***

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### **Abstract**

This user guide describes the user interfaces of iCOMCOT Web Portal. iCOMCOT is a web portal services to simulate the entire lifespan of a tsunami, from its generation, propagation and runup/rundown on coastal regions, by the Cornell Multi-grid Coupled Tsunami Model (COMCOT).



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## DOCUMENT LOG

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## TERMINOLOGY

A complete project glossary is provided at the following page: <http://www.egi.eu/about/glossary/>

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# 1 Introduction

iCOMCOT is a web portal services to simulate the entire lifespan of a tsunami, from its generation, propagation and runup/rundown on coastal regions, by the Cornell Multi-grid Coupled Tsunami Model (COMCOT). iCOMCOT portal provides the ease-to-use web interface to simulate a tsunami event after defining only the local mechanism, simulation region and tidal stations, by hiding complex scientific configuration process. In addition, to speed up the simulation, iCOMCOT takes advantages of OpenMP computing model and distributed cloud resources over the e-Infrastructure.

User only needs the web browser to access to the iCOMCOT web portal services. The following browsers are supported:

- Chrome 3+
- Firefox 3.5+
- Opera 12+
- Safari 4+
- Internet Explorer 8+

## 2 Main Page

From the main page, user could apply for a personal account or login to the services. Background and contact information of iCOMCOT web portal services could be also found at the iCOMCOT web homepage as in Figure 1

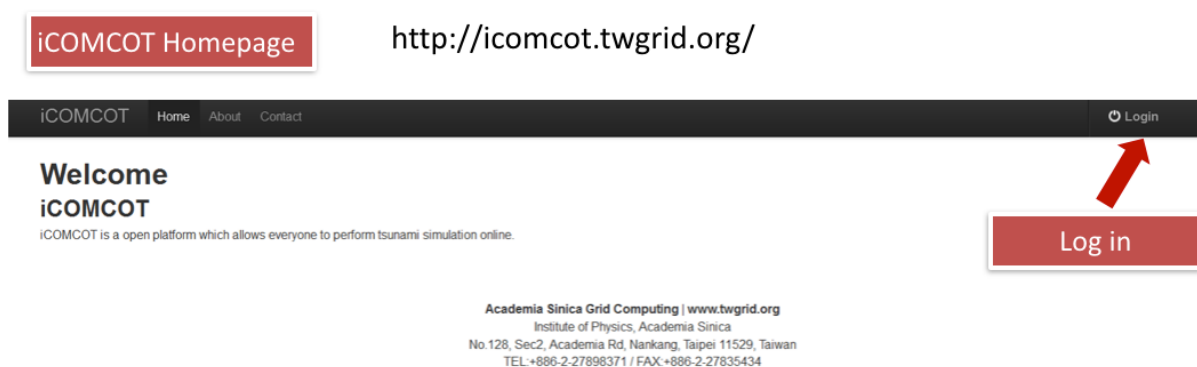


Figure 1 iCOMCOT Web Portal Homepage

### 3 Simulation Workflow

After logging in, simulation starts from filling in parameters of focal mechanisms. Figure 2 shows an example of earthquake outside the east coast of Taiwan, an event of scale 7.1.

**Welcome iCOMCOT**

iCOMCOT is a open platform which... tsunami simulation online.

Start to use by

Run simulation or View Status

or Change preset parameters for:

- Focal Mechanism
- Nested-Grid
- Tidestation settings

**Focal Mechanism settings**

View and modify your focal mechanism settings here.

Set Name: # of Fault plane

Create Copy Delete

Name of the earthquake

Dimension of fault: L(km) x W(km) x D(m)

#	Location	Depth (km)	Fault size (L:km / W:km / D:km)	Direction(°)	action
1	24°N 122°E	10	L: 100 (km) W: 20 (km) D: 10 (km)	Strike: 20° Dip: 60° Slip: 90°	

Longitude & Latitude of epicenter

Depth of hypocenter

Angle of Strike, Dip and Rake

Figure 2 Define the focal mechanism

Then, define simulation region of an event as Figure 3, and followed by defining the observation stations as Figure 4.

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Start to use by  
[Run simulation](#) or [View Status](#)  
or Change preset parameters for:

- [Focal Mechanism](#)
- [Nested-Grid](#)
- [Tidestation settings](#)

**Example of areas surrounding Taiwan**

#	Set Name	# of Sub-grids
1	Taiwan	1

#	latitude	longitude	grid size	action
1	20°N - 28°N	118°E - 125°E	0°30"	<a href="#">edit</a> <a href="#">delete</a>

Range in degree of Long & Lat

Generate a wave height per 30 minute (around 50km)

Figure 3 Define the Simulation Space

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Start to use by  
[Run simulation](#) or [View Status](#)  
or Change preset parameters for:

- [Focal Mechanism](#)
- [Nested-Grid](#)
- [Tidestation settings](#)

**Three observation sites selected in east coast of Taiwan**

#	Set Name	# of Tidestations
1	E-Taiwan	3

#	Name	Location	action
1	Ban	25°N 122°E	<a href="#">edit</a> <a href="#">delete</a>
2	Hualien	24.269999°N 122°E	<a href="#">edit</a> <a href="#">delete</a>
3	Taiung	22.5°N 121.400002°E	<a href="#">edit</a> <a href="#">delete</a>

Exact location defined by long & lat.

Figure 4 Define the Observation Points

iCOMCOT
Home
About
Simulation
Status
Contact

1. Basic parameters
2. Focal Mechanism
3. Nested-Grid
4. Tide Station
5. Run

## Step 5

### Run

#### All selected parameters

Simulation Name	
Simulation Time	1
Time to save data	0.5
Focal Mechanism	
Nested-Grid	
Tidestation	

← Previous
Next →
Submit

Figure 5 Job submission

When all these required parameters are set and then submit to simulation job to run. Job status would be updated and checked at the web portal as Figure 6.

iCOMCOT
Home
About
Simulation
Status
Contact
Logout
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### Status

In this page, user can view the status of running simulation, retrieve simulation result, and view the running history.

#	Simulation Name	Status	Start Time	Elapsed Time	Action
1	TWSim1	POST-PROCESS	Fri Apr 15 2016 17:11:02 GMT+0800 (CST)	0:06:01	View Detail View Log
2	Sim-2016032902	DONE	Tue Mar 29 2016 16:25:24 GMT+0800 (CST)	0:22:58	View Detail View Log View Result Download Result
3	Sim-20160329	DONE	Tue Mar 29 2016 12:43:53 GMT+0800 (CST)	1:33:08	View Detail View Log View Result Download Result
4	SCS6	DONE	Sun Mar 29 2015 16:13:11 GMT+0800 (CST)	0:04:50	View Detail View Log View Result Download Result
5	SCS6	DONE	Sat Mar 28 2015 17:55:53 GMT+0800 (CST)	0:05:13	View Detail View Log View Result Download Result
6	SCS5	DONE	Sat Mar 28 2015 17:50:25 GMT+0800 (CST)	0:03:08	View Detail View Log View Result Download Result

Figure 6 Job Status Check from the Web Portal



## 4 Result Visualization

Simulation results include the initial surface, maximum wave height (Figure 7), wave height records in time series at each observation point (tide station)(Figure 8), wave propagation animation (Figure 9), and bathymetry (Figure 10)

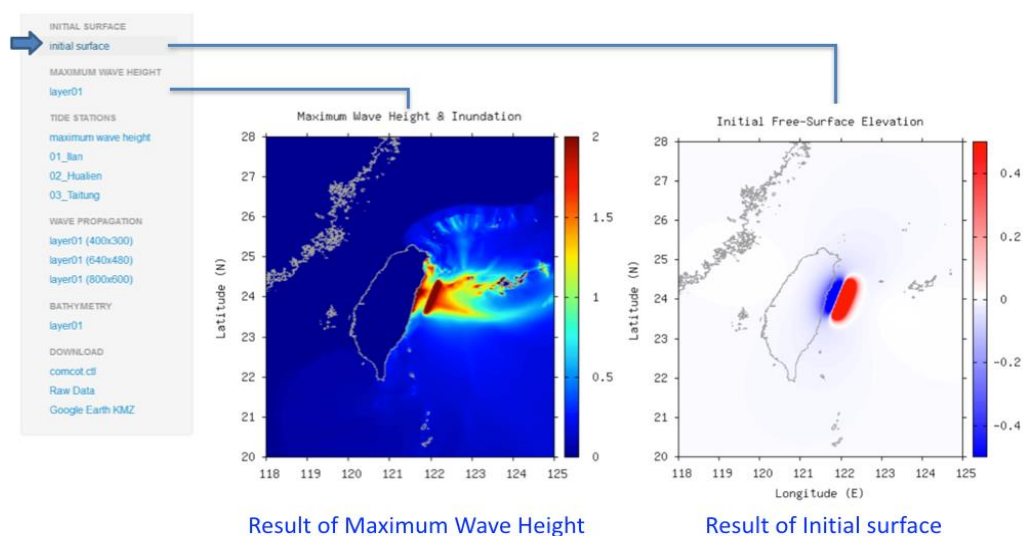


Figure 7 Results of Initial Surface and Maximum Wave Height

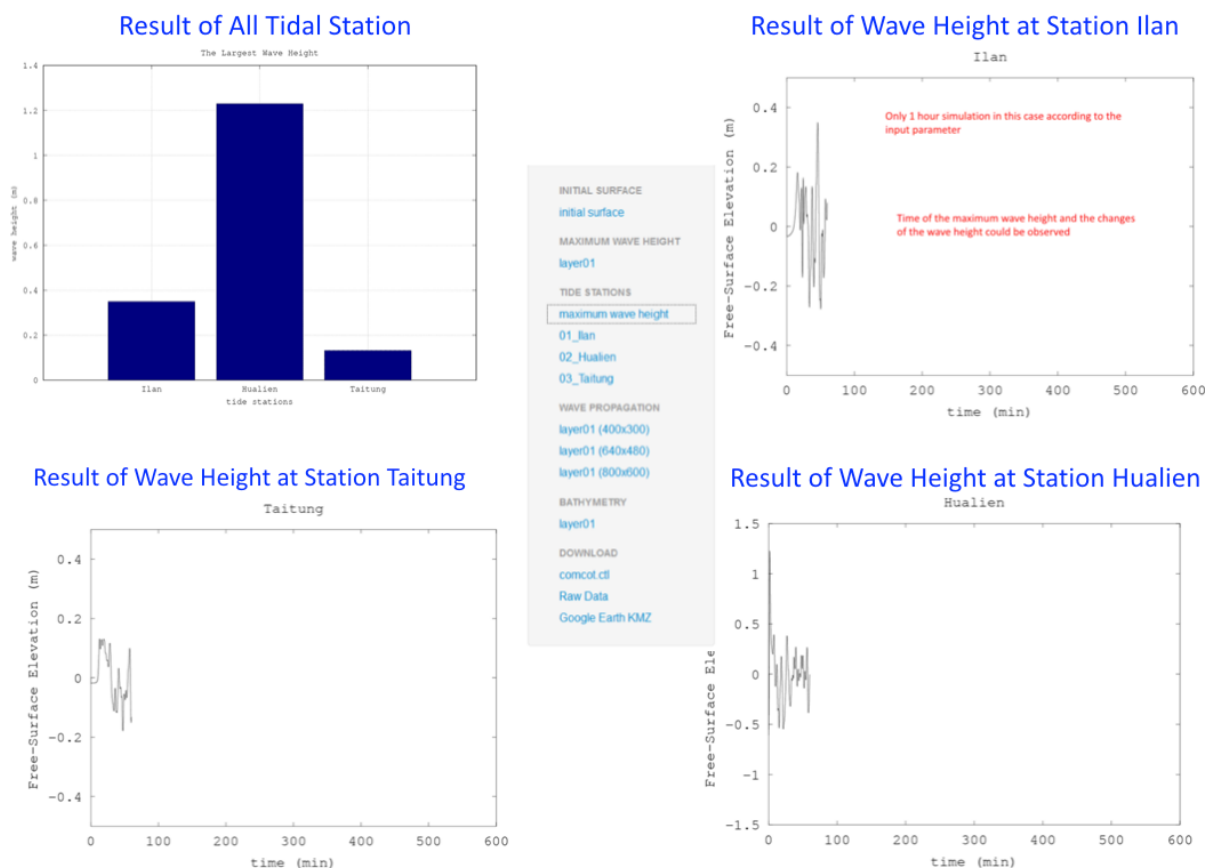


Figure 8 Result of Wave Height at Defined Observation Point (Tide Station)

## Wave Propagation in Animation

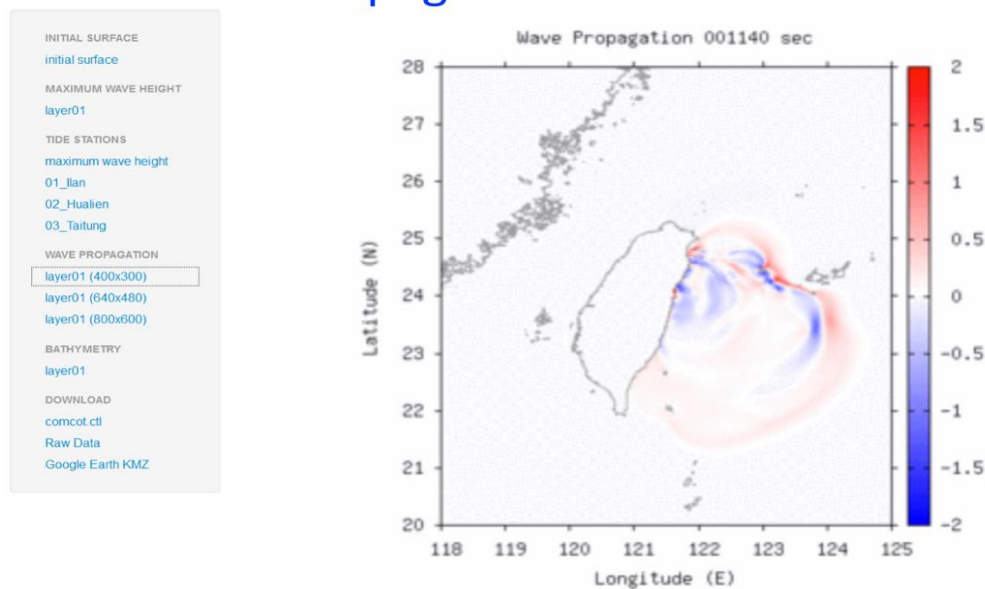


Figure 9 Wave Propagation Animation

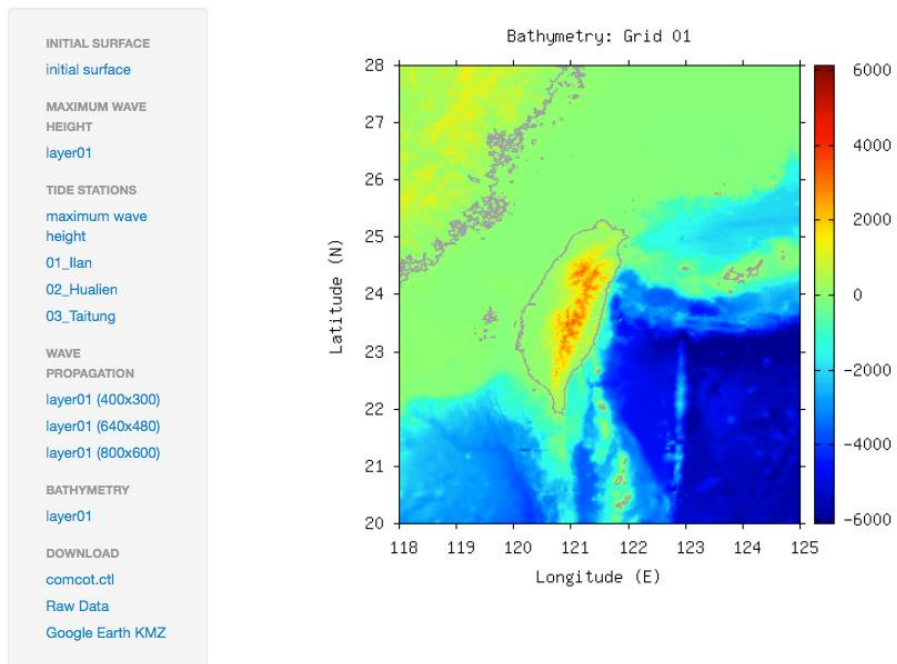


Figure 10 Bathymetric of Simulation Space