

Application Name	Wave Watch 3 for SCOOP
Application Area	Event Driven Coastal Modeling
Keywords	Wave Models, Hurricane, SCOOP, Wave Watch 3, Grid Computing
Project/Dept. Affiliation	Center for Computation and Technology, SCOOP, Bredford Institute of Oceanography
Value of grids to this application	Grid installations will greatly improve ability to distribute Event Driven Wave Watch 3 instances across geographical domains and take advantage of supercomputing resources to process wave model for Hurricane events.
Originating institution	Computational Assistance : CCT LSU, Science Experts : Bredford Institute of Oceanography
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Participating sites	CCT LSU
General description	<p>MODEL Description :</p> <p>“ WAVEWATCH III solves the spectral action density balance equation for wavenumber-direction spectra. The implicit assumption of this equation is that properties of medium (water depth and current) as well as the wave field itself vary on time and space scales that are much larger than the variation scales of a single wave. A further constraint is that the parameterizations of physical processes included in the model do not address conditions where the waves are strongly depth-limited. These two basic assumptions imply that the model can generally be applied on spatial scales (grid increments) larger than 1 to 10 km, and outside the surf zone. “ Source : http://polar.ncep.noaa.gov/waves/wavewatch/wavewatch.html</p> <p>Scenario Description :</p> <p>Above model is initiated on best compute resources available , in an automated manner based on the track forecasts from NOAA. Results of the computational model are then relayed to SCOOP partners who post-process and visualize results.</p> <p>Example :</p> <p>http://www.openioos.org/testbed/scoop/index.html?map_type=w</p>

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Anticipated system requirements for participation	<p>Anticipated computational requirements :</p> <p>128 processprs – 30 minutes 64 processors - 40 minutes 32 processors – 1hr 20 minutes 16 processors – 2 hrs 40 minutes</p> <p>NOTE : These requirements are for each event.. there are several (atleast 4) such hurricane event notifications and 5 ensembles per event notification. Main tracks will be processed at LSU, CCT compute resources. SURA resources will be utilized for surrounding tracks.</p>
Anticipated non-system requirements for participation	<p>GLOBUS (Gram and Grid FTP) Fortran 90 compilers and libraries mpi / openmp bindings for fortran 90 latest compatible python versions (2.3 and greater) Perl Netcdf utilities (Libraries, ncdump, ncgen)</p>
Grid focus (data sharing, computation, access to unique resources, collaboration)	Data Sharing and Remote computational resources.
Network dependencies (bandwidth, latency, multicast, other)	Yet to be determined.