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A Model Archive for a Coupled Hydrodynamic-Sediment Transport-Biogeochemistry Model for the Northern Gulf of Mexico, USA

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Full Dataset Available Here

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Title of Dataset: A Model Archive for a Coupled Hydrodynamic-Sediment Transport-Biogeochemistry Model for the Northern Gulf of Mexico, USA

Publication Date: 2018

Description: These files are compressed versions of input files, model code, and output used for the associated publication in Journal of Geophysical Research: Oceans (see below). Compressed files with the .gz file extension can be opened with Gzip GNU software (open source). Compressed files with the .tar file extension can be opened with Gzip Tar software (open source). Many of the input and output files use the NetCDF (Network Common Data Form) file format. These have "nc" as a file extension and can be read using a variety of open source tools: see http://www.unidata.ucar.edu/software/netcdf/docs/ . For information about the Regional Ocean Modeling System (ROMS), its model code and input / output, see www.myroms.org.

File Description Table:

File Name	Description	
Input Files		
mch_grd.nc.gz	Input File – Model Grid	
gom_bry_0016.nc.gz	Input File – Forcing at Open Boundary	
mch_atmo_frc.nc.gz	Input File – Atmospheric Forcing, except for winds	
NARR-UV-nch_grd3m-200301-	Input File – Wind Forcing	
200912.nc.gz		
gom_river_0017.nc.gz	Input File – River Forcing	
gom_waves_0018.nc.gz	Input File - Wave Forcing	
varinfo.dat.gz	Input File – List of variables	
1. ocean_standard_2006.in.gz	Input Files – Model Run Information for:	
2. ocean_standard_2007.in.gz	1. Standard model run (2006)	
3. ocean_noresusp_July_2006.in.gz	2. Standard model run (2007)	
4. ocean_noresusp_July_2007.in.gz	3. No-resuspension model run (July 2006)	
5. ocean_noresusp_June_2007.in.gz	4. No-resuspension model run (July 2007)	
6. ocean_noresusp_June_2006.in.gz	5. No-resuspension model run (June 2007)	

7. ocean_fastset.in.gz 8. ocean_slowset.in.gz 9. ocean_fastrem.in.gz 10. ocean_slowrem.in.gz 11. sed_standard.in.gz 12. sed_noresusp.in.gz 13. sed_slowset.in.gz 14. sed_slowset.in.gz 15. bio_standard.in.gz 16. No-resuspension model run (June 200	or: s well n d July		
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1. gom_init_0099_from0098.nc.gz			
2. gom_init_0100_from0099.nc.gz 1. Standard model run (2006)			
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4. gom_init_0102_from0100.nc.gz 3. No-resuspension model run (July 2006)	-		
5. gom_init_0103_from0100.nc.gz 4. No-resuspension model run (July 2007)			
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Model Code			
build.bash.gz Model Code - Script to Compile Model			
mch_hbs.h.gz Model Code - Options for Model Compilation			
trunk_sbt_gom.tar Model Code - Model Code			
Model Output			
1. results_gom_standard_2006.tar Model Output for:			
2. results_gom_standard_2007.tar 1. Standard model run (2006)			
3. results_gom_no_resuspension_June2 2. Standard model run (2007)			
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007.tar 9. Fast-remineralization sensitivity test			

7.	results_gom_fast_settling.tar	10. Slow-remineralization sensitivity test
8.	results_gom_slow_settling.tar	
9.	results_gom_fast_remin.tar	
	results_gom_slow_remin.tar	

DOI: I would like a DOI assigned to this dataset

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Keywords: Northern Gulf of Mexico, USA; sediment transport; biogeochemistry; numerical modeling; oceanography; Regional Ocean Modeling System (ROMS); hypoxia; oxygen; ammonium; particulate organic carbon remineralization; resuspension; sediment oxygen consumption.

Associated Publications: Moriarty, J. M., Harris, C. K., Friedrichs, M.A.M, Fennel, K., and Xu, K. (2018). Impact of seabed resuspension on oxygen and nitrogen dynamics in the northern Gulf of Mexico: A numerical modeling study. Accepted by Journal of Geophysical Research: Oceans.

Author contributions:

- 1. Moriarty Model development.
- 2. Harris Oversaw all aspects of model development.
- 3. Friedrichs Oversaw all aspects of model development.
- 4. Fennel Provided data for hydrodynamic and biogeochemical input files and model forcing (water column currents, oxygen & nutrient concentrations, etc.).
- 5. Xu Provided data for hydrodynamic and sediment transport input files and model forcing (waves, water column sediment concentrations, etc.).

Spatial Information: 27.4-30.3°N, -94.6 - -87.8 °W; Louisiana continental shelf, Northern Gulf of Mexico, USA