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A Model Archive for a Coupled Hydrodynamic-Sediment Transport-Biogeochemistry Model for the Rhône River Sub-aqueous Delta, France

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README Summary

Title: A Model Archive for a Coupled Hydrodynamic-Sediment Transport-Biogeochemistry Model for the Rhône River Sub-aqueous Delta, France

Publication Date: 2017.

Associated Publication:
Moriarty, J. M., Harris, C. K., Rabouille, C., Fennel, K., Friedrichs, M.A.M, and Xu, K. (accepted, March 2017). The Roles of Resuspension, Diffusion and Biogeochemical Processes on Oxygen Dynamics Offshore of the Rhone River, France: A Numerical Modeling Study. *Biogeosciences.*

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Keywords: Rhône River Delta, France; sediment transport; biogeochemistry; numerical modeling; oceanography; Regional Ocean Modeling System (ROMS).

Description: These files are compressed versions of input files, model code, and output used for the associated publication in *Biogeosciences* (see above). 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 .

Author contributions:
1 Moriarty - Model development (~2013-2017).
2 Harris - Oversaw all aspects of model development (2008-2017).

3 Fennel - Provided access to Soetaert model and guidance during model development.
4 Xu - Model development (2007-2008).
5 Rabouille - Provided data for input files (waves, water column oxygen & nutrient concentrations, etc.) and seabed biogeochemistry data (porewater oxygen time-series and diffusive oxygen uptake) that were used to calibrate and evaluate the model.
6 Friedrichs - Guidance on model development.

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Spatial Information: 43°19.2 N, 4°52 E; Rhone River sub-aqueous delta, Gulf of Lion, France

Files include:

File	Description
Input Files	
init_rhone3.nc.gz	Input File – Model Initialization
rhone_waves3.nc	Input File - Wave Forcing
bio_rhone.in.gz	Input File – Water column Biogeochemistry Information
sed_standard.in.gz	Input File - Sediment Information
ocean_standard.in.gz	Input File – Model Run Information
varinfo.dat.gz	Input File – List of variables
sedbiotoy.h.gz	Input File – Options for Model Compilation
ana_grid.h.gz ana_pair.h.gz ana_smflux.h.gz ana_stflux.h.gz ata_tclima.h.gz	Input File/Model Code: Model grid, air pressure, wind stresses, and climatology of water column tracers
Model Code	
build.bash.gz	Model Code - Script to Compile Model
trunk_sbt2.tar	Model Code - Model Code
Model Output *Note that for each sensitivity test, altered input files, as well as files for the no-resuspension model run for each sensitivity test, were included with the model output	

results_standard.tar	Model Output - Standard Model Run
results_input_no_resuspension.tar	Model Output – No Resuspension Version of the Standard Model Run
results_input_b1.tar	Model Output –Low Seabed Diffusion Sensitivity Test from Moriarty et al. (2017)
results_input_b2.tar	Model Output –High Seabed Diffusion Sensitivity Test from Moriarty et al. (2017)
results_input_c1.tar	Model Output –No Organic Matter Partitioning Sensitivity Test from Moriarty et al. (2017)
results_input_l1.tar	Model Output –Low Lability Sensitivity Test from Moriarty et al. (2017)
results_input_l2.tar	Model Output –High Lability Sensitivity Test from Moriarty et al. (2017)
results_input_n1.tar	Model Output –Low Nitrification Rate Sensitivity Test from Moriarty et al. (2017)
results_input_n2.tar	Model Output –High Nitrification Rate Sensitivity Test from Moriarty et al. (2017)
results_input_p1.tar	Model Output –Low Particulate Organic Matter Sedimentation Sensitivity Test from Moriarty et al. (2017)
results_input_p2.tar	Model Output –High Particulate Organic Matter Sedimentation Sensitivity Test from Moriarty et al. (2017)
results_input_r1.tar	Model Output –Low Erosion Rate Parameter Sensitivity Test from Moriarty et al. (2017)
results_input_r2.tar	Model Output –High Erosion Rate Parameter Sensitivity Test from Moriarty et al. (2017)
results_input_s1.tar	Model Output –Low Inorganic Sedimentation Sensitivity Test from Moriarty et al. (2017)
results_input_s2.tar	Model Output –High Inorganic Sedimentation Sensitivity Test from Moriarty et al. (2017)
results_input_t1.tar	Model Output –Low Critical Shear

	Stress Sensitivity Test from Moriarty et al. (2017)
results_input_t2.tar	Model Output –High Critical Shear Stress Sensitivity Test from Moriarty et al. (2017)