2018 Tidal validation simulation

Simulation summary

A 6-month hindcast simulation on the ec2001 grid with high-resolution coverage over Port Everglades from Hillsboro Inlet down to Card Sound in Biscayne Bay,

Model: 2DDI unstructured ADCIRC,

Bathymetry data from **Miami 1/3 arc-second MHW Coastal Digital Elevation Model**

Tidal spin up: 20 days

The total length of simulation is 201 days,

The model-predicted water level is compared with the predicted tides by NOAA at Virginia Key station.

Number of computational nodes: 295262

Wall-clock time: less than 4 days in parallel using 45 CPUs (platform: Coconut)

Validation plots can be found on
https://www.dropbox.com/sh/5qu32db8upx1ape/AAB6LhjO17fU1Bjh_uZ-bbYHa?dl=0

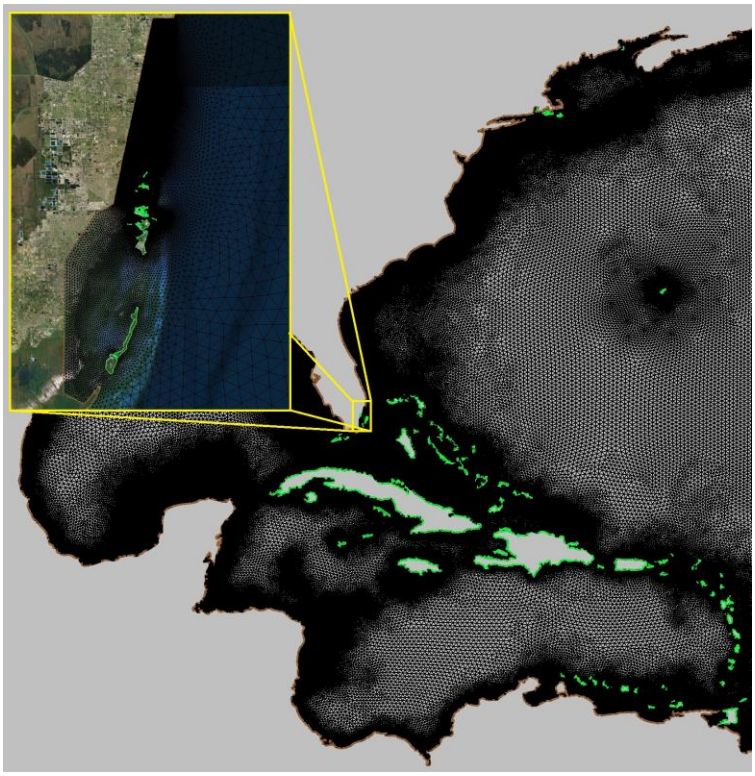

Fig. 1. Ec2001 mesh with high-resolution subset of Port Everglade and Biscayne Bay used in the simulation.

A summary of the control file and simulation parameters:

```
Port Everglades       ! 32 CHARACTER ALPHANUMERIC RUN DESCRIPTION
 6-month 2018         ! 24 CHARACTER ALPANUMERIC RUN IDENTIFICATION
 1                    ! NFOVER - NONFATAL ERROR OVERRIDE OPTION
 0                    ! NABOUT - ABREVIATED OUTPUT OPTION PARAMETER
 1000                 ! NSCREEN - UNIT 6 OUTPUT OPTION PARAMETER
 0                    ! IHOT - HOT START PARAMETER
 2                    ! ICS - COORDINATE SYSTEM SELECTION PARAMETER
 111122               ! IM - MODEL SELECTION PARAMETER
 1                    ! NOLIBF - BOTTOM FRICTION TERM SELECTION PARAMETER
 2                    ! NOLIFA - FINITE AMPLITUDE TERM SELECTION PARAMETER
 0                    ! NOLICA - SPATIAL DERIVATIVE CONVECTIVE SELECTION PARAMETER
 0                    ! NOLICAT - TIME DERIVATIVE CONVECTIVE TERM SELECTION PARAMETER
 5                    ! NWP - VARIABLE BOTTOM FRICTION AND LATERAL VISCOSITY OPTION PARAMETER
mannings_n_at_sea_floor
average_horizontal_eddy_viscosity_in_sea_water_wrt_depth
primitive_weighting_in_continuity_equation
elemental_slope_limiter
sea_surface_height_above_geoid
 1                    ! NCOR - VARIABLE CORIOLIS IN SPACE OPTION PARAMETER
 1                    ! NTIP - TIDAL POTENTIAL OPTION PARAMETER
 0                    ! NWS - WIND STRESS AND BAROMETRIC PRESSURE OPTION PARAMETER
 1                     ! NRAMP - RAMP FUNCTION OPTION
 9.81                  ! G - ACCELERATION DUE TO GRAVITY - DETERMINES UNITS
 -3.0                  ! TAU0 - WEIGHTING FACTOR IN GWCE
 1                     ! DT - TIME STEP (IN SECONDS)
 0.00                  ! STATIM - STARTING TIME (IN DAYS)
 0.00                  ! REFTIM - REFERENCE TIME (IN DAYS)
 201                   ! RNDAY - TOTAL LENGTH OF SIMULATION (IN DAYS)
 10.0                  ! DRAMP - DURATION OF RAMP FUNCTION (IN DAYS)
 0.0  1.0 0.0                ! TIME WEIGHTING FACTORS FOR THE GWCE EQUATION
 0.10 0 0 0.01                ! H0, NODEDRYMIN, NODEWETMIN, VELMIN
 265.5 29.0                  ! SLAM0,SFEA0 - CENTER OF CPP PROJECTION
 0.003  2.0 10 1.33333    ! FFACTOR,HBREAK,FTHETA,FGAMMA
 10.0                        ! ESL - LATERAL EDDY VISCOSITY COEFFICIENT; IGNORED IF NWP =1
 0.0                         ! CORI - CORIOLIS PARAMETER - IGNORED IF NCOR = 1
 8                          ! NTIF - TOTAL NUMBER OF TIDAL POTENTIAL CONSTITUENTS BE
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