XBeach Standard Names

For more info on XBeach please refer to https://public.deltares.nl/display/XBEACH/Home

XBeach names

XBeach name	standard_name	variable name
(m) x-coord. comp. grid (positive shoreward, perp. to coastline)		
(m) y-coord. comp. grid		
(m) x-coord. comp. grid (positive shoreward, perp. to coastline)		
(m) y-coord. comp. grid		
(m) x-coord. in u points		
(m) y-coord. in v points		
(m) world x-coordinates	projection_x_coordinate (CF)	
(m) world y-coordinates	projection_y_coordinate (CF)	
(m) grid size x-direction		
(m) grid size y-direction		
(m) x-origin of grid in world coordinates		
(m) y-origin of grid in world coordinates		
(rad) (deg on input) angle of grid w.r.t. East		
🚫 depths defined positive downwards (1) or upwards(-1)	(attribute in depth variable CF)	
(rad) minimum angle of computational wave grid (carth. in rad)		
(rad) minimum angle of computational wave grid (carth. in rad)		
🚫 local number of grid cells x-direction		
🚫 local number of grid cells y-direction		
(m) bed level		
(m) initial bed level	sea_surface_height_above_geoid (CF) (at t=0)	
(rad) wave angles directional distribution w.r.t. comp. x-axis	sea_surface_wave_to_direction	
🚫 number of wave direction bins		
(rad) wave direction bin size		
(rad) mean incident wave angle		
🚫 cos(theta)		
🚫 sin(theta)		
(rad) mean wave angle		
(N/m2) wave force x-direction		
(N/m2) wave force y-direction		
(N/m) radiation stress		
(N/m) radiation stress		
(N/m) radiation stress		
🚫 ratio group velocity/wave celerity		
(m) wave height		
(m/s) group velocity x-direction		
(m/s) group velocity y-direction		
(m/s) wave celerity x-direction		
(m/s) wave celerity y-direction		
(rad/s) wave celerity theta-direction (refraction)		

Description	Standard name
(J/m2/rad) directionally distributed wave energy	
(rad) wave angles	
🚫 cos of wave angles	
🚫 sin of wave angles	
(rad/s) relative frequency	
(J/m2/rad) directionally distributed roller energy	
(rad/m) wave number	
(m/s) wave celerity	
(m/s) group velocity	
(rad/s) mean frequency	
(rad/s) mean abs frequency	
(m) water depth	sea_floor_depth_below_sea_level
(m) water level	sea_surface_height_above_geoid (CF)
(m) water level due to tide alone	
(s) input time of input tidal signal	
(m) input tidal signal	
(s) input time of input wind signal	
(m/s) input wind velocity	
(deg nautical) input wind direction	
(m/s) uniform wind velocity current time	
(m/s) uniform wind direction current time	
(m/s) rate of change water level	
(m/s) water surface gradient in x-direction	
(m/s) water surface gradient in y-direction	
🚫 bed level gradient in x-direction	
🚫 bed level gradient in y-direction	
(m/s) rate of change bed level	
(m/s) (GLM) x-velocity in u-points	
(m/s) (GLM) y-velocity in v-points	
(m2/s) x-discharge in u-points	
(m2/s) y-discharge in u-points	
(m) cum. sedimentation/erosion	
(kg/m3/m) bed concentration gradient x-dir.	
(kg/m3/m) bed concentration gradient y-dir.	
(kg/m3/m) suspended concentration gradient x-dir.	
(kg/m3/m) suspended concentration gradient y-dir.	
(m/s) incident bound wave velocity	
(Nm/m2) wave energy	
(Nm/m2) roller energy	
(m/s) orbital velocity	
(W/m2) dissipation	
🚫 fraction breaking waves	
(m/s) Stokes drift	
(rad) mean wave direction	
(m/s) Eulerian mean velocity x-dir.	
(m/s) Eulerian mean velocity y-dir.	
(m/s) (GLM) velocity magnitude u-points	

(m/s) (GLM) velocity magnitude u-points	
(m/s) (GLM) velocity magnitude v-points	
(m/s) (GLM) velocity magnitude v-points	
(m/s) (GLM) x-velocity cell centre (for output)	
(m/s) (GLM) y-velocity cell centre (for output)	
(m/s) Eulerian mean x-velocity cell centre (for output)	
(m/s) Eulerian mean y-velocity cell centre (for output)	
(m) water depth previous time step	
🚫 mask wet/dry u-points	
🚫 mask wet/dry v-points	
🚫 mask wet/dry eta-points	
(m) water depth in u-points	
(m) water depth in v-points	
(m) water depth in u-points	
(m) water depth in v-points	
(m/s) velocity magnitude in cell centre	
(m3/m3) depth-averaged concentration for each sediment fraction	
(m/s) x-comp. Stokes drift	
(m/s) y-comp. Stokes drift	
(m/s) return flow due to roller	
(m/s) return flow due to roller after breaker delay	
(m) incoming bound long wave	
(W/m2) roller energy dissipation	
(m/s) longterm mean velocity at bnds in x-direction	
(m/s) longterm mean velocity at bnds in y-direction	
🚫 0 = uniform grid size, 1 = variable grid size	
(m/s) y velocity in u points	
(m/s) x velocity in v points	
(m) D50 grain diameters for all sediment classses	
(m) D90 grain diameters for all sediment classses	
🚫 equilibrium sediment concentartion factor for each sediment class	
🚫 calibration factor for u critical for each sediment class	
(s) sediment response time for each sediment class	
(m2/s) suspended sediment transport x-dir. for each sediment class (excluding pores)	
(m2/s) suspended sediment transport y-dir. for each sediment class (excluding pores)	
(m2/s) bed sediment transport x-dir. for each sediment class (excluding pores)	
(m2/s) bed sediment transport y-dir. for each sediment class (excluding pores)	
(m3/m3) depth-averaged bed equilibrium concentration for each sediment class	
(m3/m3) depth-averaged suspended equilibrium concentration for each sediment class	
(m/s) time averaged flow velocity due to wave assymetry	
🚫 maximum wave surface slope used in roller dissipation formulation	
(m^2/s^2) near bed turbulence intensity due to depth induces breaking	
(s) wave period interval associated with breaking induced turbulence	
(m) total bed level change due to avalanching	
(m) maximum elevation in simulation	
(m) minimum elevation in simulation for subroutine dispersion	

🔴 skewness of short waves	
🔴 asymmetry of short waves	
(m) groundwater head (differs from gwlevel)	
(m) groundwater table (min(zb,gwhead))	
(m) vertical size of aquifer through which groundwater can flow	
(m) level of the bottom of the aquifer	
(m/s) groundwater flow in x-direction	
(m/s) groundwater flow in y-direction	
(m/s) groundwater flow in z-direction (interaction between surface and ground water)	
(m) Infiltration layer depth used in quasi-vertical flow model for groundwater	
(m) boundary condition back boundary for groundwater head	
(m^2/s^2) depth averaged turbulence intensity due to long wave breaking	
(m/s) bed erosion rate per fraction	
(m/s) implicit bed deposition rate per fraction	
(m/s) explicit bed deposition rate per fraction	
🔴 number of bed layers (can be difefrent for each computational cell)	
(m/s) u-velocity (time-averaged) for wci	
(m) long wave roller thickness	
(m/s) v-velocity (time-averaged) for wci	
(m) waterlevel (time-averaged) for wci	
(m^2/s^2) normalized dynamic pressure	
(m/s) vertical velocity at the bottom	
(m/s) vertical velocity at the free surface	
(N/m^2) x-component of bed shear stress	
(N/m^2) y-component of bed shear stress	
(W/m^2) dissipation rate due to bed friction	
(m2/s) Sediment transport integrated over bed load and suspended and for all sediment grains	
(m2/s) Sediment transport integrated over bed load and suspended and for all sediment grains	
(m3/m3) Sediment concentration integrated over bed load and suspended and for all sediment grains	
(m/s) ! Vertical velocity at boundary due to (short) waves2	
(m) ! Surface elevation at boundary due to (short) waves	
(m2/s) horizontal viscosity coefficient	