The Arc2kmTM model, in binary format, consists of five files:

ASCII text file:

Model_Arc2kmTM_v*:	Model control file. Used with the TMD MATLAB toolbox v2.5 (https://github.com/EarthAndSpaceResearch/TMD_Matlab_Toolbox_v2.5) and OTPS (https://www.tpxo.net/otps) software
xy_ll_Arc2kmTM.m:	MATLAB script for converting between polar stereo native grid and lat, lon (a required file when using MATLAB TMD v2.5)

Three files in OTIS binary format, using the Arakawa C-grid convention:

grid_Arc2kmTM_v*:	Binary file of gridded bathymetry
h_Arc2kmTM_v*:	Binary file of complex model elevation amplitude coefficients on `z`-nodes
UV_Arc2kmTM_v*:	Binary file of complex model volume transport coefficients on the `U` and `V` nodes

where _v* indicates version number.

Binary File Formats

grid_ Arc2kmTM_v*: *Sequential FORTRAN binary file with 4 records*

(1) header: *n, m, theta_lim, phi_lim, dt, nob* where

- *n,m* - integer grid dimensions;
- *theta_lim(2)* and *phi_lim(2)* are real limits of the area in km;
- *nob* - is an integer number of open boundary nodes.
- *dt* - obsolete - real time step (seconds) used for time stepping of forward (prior) model. Presently this is not used for any frequency domain solution techniques based on matrix factorization. However, the sign of the parameter is used to define whether the grid is on Cartesian (km) or Polar (Latitude, Longitude). If *dt*>0, the grid is in polar coordinates, if *dt*<0, the grid is Cartesian.

(2) list of open boundary node indices *(i,j)*; This is an integer(kind=4) array of size (2,nob).

(3) bathymetry (depth, m) real(kind=4) *n* x *m* array of water depth. The bathymetry data is interpreted throughout the inversion software as the average water depth over each of the *n x m* grid cells.

(4) ocean/land mask: integer(kind=4) *n* x *m* array of 1 for ocean nodes, 0 for land nodes.

h_ Arc2kmTM_v*: *Fortran binary sequential file in the following format.*

(1) header: *n, m, nc, theta_lim, phi_lim, c_id,* where

- *n,m* - integer grid dimensions;

- *nc* - integer number of tidal constituents;
- *theta_lim(2)* and *phi_lim(2)* are real limits of the area in km;
- *c_id(nc)* - character*4 array of tidal constituent names.

(2) tidal elevations (m) (*nc* records)

- z_1 *(n,m)* - complex *n* x *m* array of tidal elevations, constituent *c_id(1)*;
- ...
- z_{nc}*(n,m)* - complex *n* x *m* array of tidal elevations, constituent *c_id(nc)*;

UV_ Arc2kmTM_v*: *Fortran binary sequential file in the following format.*

(1) header: *n, m, nc, theta_lim, phi_lim, c_id,* where

- *n,m* - integer grid dimensions;
- *nc* - number of tidal constituents;
- *theta_lim(2)* and *phi_lim(2)* are real limits of the area in km;
- *c_id(nc)* - character*4 array of tidal constituent names.

(2) tidal transports (m^2/s) (*nc* records)

- uv_1*(2,n,m)* - complex *2* x *n* x *m* array of East-West (*u=uv(1,:,:)*) and North-South *v=uv(2,:,:)*) transports, constituent *c_id(1)*;
- ...
- uv_{nc}*(2,n,m)* - complex *n* x *m* arrays of East-West (*u=*uv_{nc}*(1,:,:)*)and North South (*v=*v_{nc}*(2,:,:)*) transports, constituent *c_id(nc)*;

The model grid files, formatted to match the Oregon State Tidal Inversion Software (OTIS) format, can be accessed using ESR's Matlab "Tide Model Driver" (TMD) toolbox v2.5 (https://github.com/EarthAndSpaceResearch), the community Python-based pyTMD software (https://github.com/tsutterley/pyTMD) and OSU's FORTRAN "OSU Tidal Prediction Software " (OTPS) (https://www.tpxo.net/otps). The same codes work on ESR's polar models and OSU's family of global and regional models.