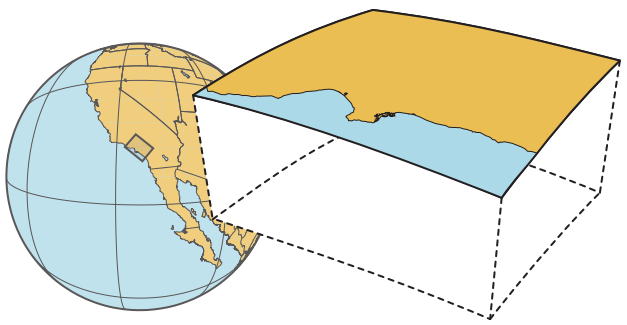
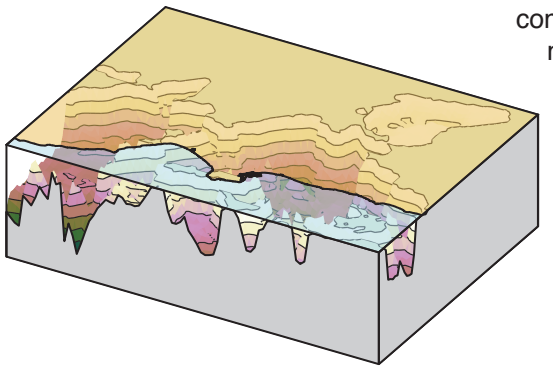
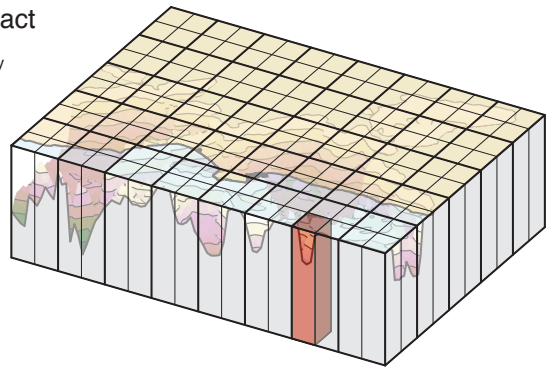
ucvm2etree **ucvm2etree_[*mpi-process*]**



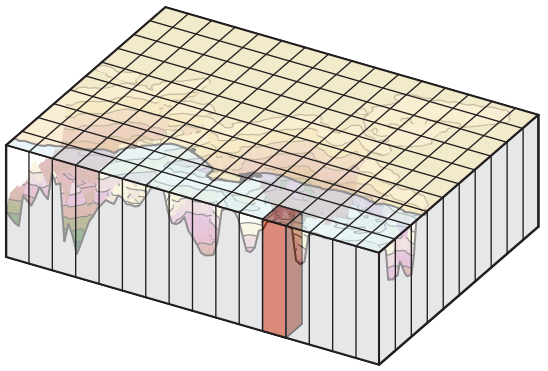
Map projection from a longitude-latitude-depth to a x-y-z coordinate system



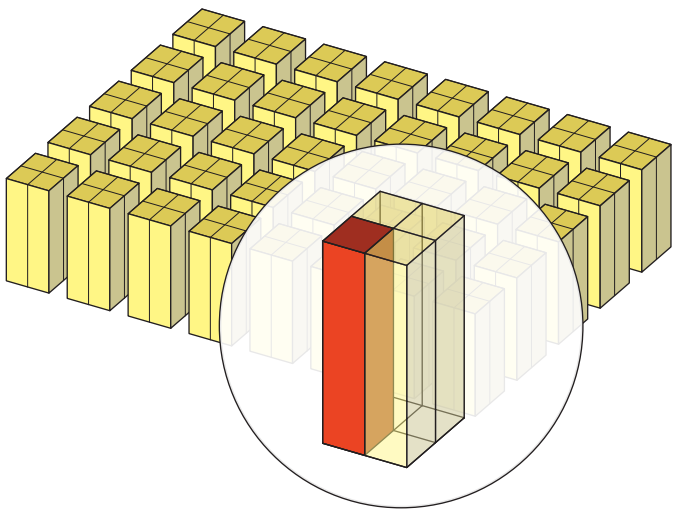
In the first step of the parallel commands, ucvm2etree_extract maps the domain to $p_x \times p_y$ processors



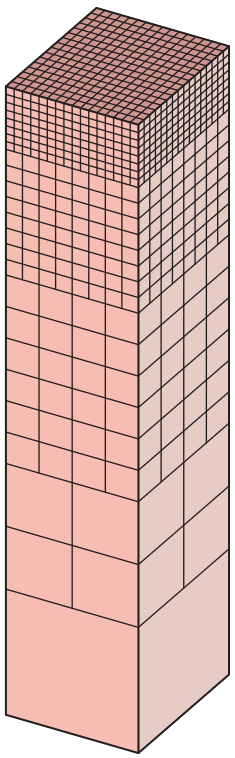
In the single-core command, the model domain is divided into $c_x \times c_y$ columns. Each column is meshed as an independent octree



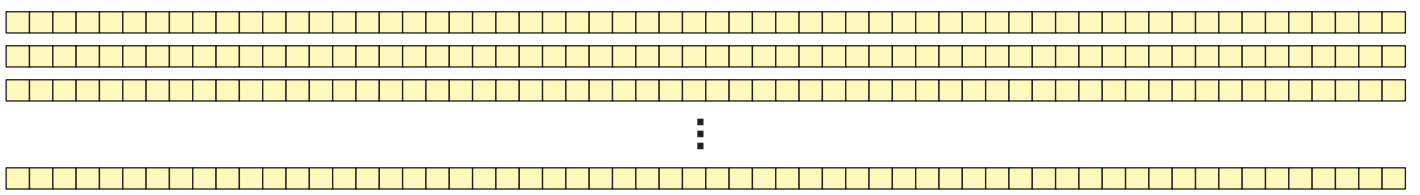
Each processor receives $c_x/p_x \times c_y/p_y$ columns and meshes each column independently



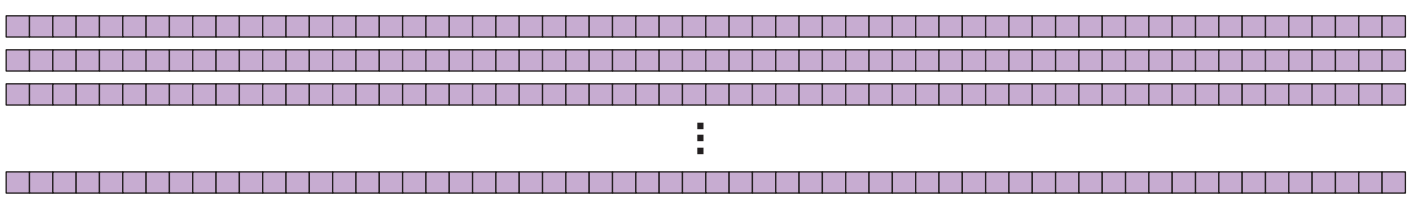
In both the single-core and the parallel programs, each column is meshed progressively downward, adjusting the octants size at each horizontal layer according to the lower bound size $V_{min}/(p \cdot f_{max})$. Each column has an independent vertical discretization.



The octants in the mesh of each column are arranged in local *z*-order. In the parallel version, ucvm2etree_extract writes these meshes to disk



The local column meshes are sorted in global *z*-order. In the parallel version, this is done by ucvm2etree_sort.



The last step merges the global *z*-ordered column meshes in a single mesh. In the parallel version this is done by ucvm2etree_merge.

The end result is a binary file (etree) with metadata about the model origin coordinates, dimensions, date of creation and authorship.