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## A parallel, integrated landscape evolution model coupling with ASPECT

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We developed a numerical model handling landscape evolution in various time scales which can be coupled with the well known mantle convection program, ASPECT. Efforts on three aspects have been made to improve the performance of our model: (a) a flexible coupling interface allowing simulators of tectonics and surface process to run in different MPI communicators in order to obtain maximum computing efficiency; (b) a far-field boundary type that allows an inland surface model to be denudated freely on its boundaries; (c) application of high-order HDG method that prevents rivers from being disrupted by the remesh due to horizontal tectonic movements. Numerical experiences have shown that our model is adequate to simulate surface process in complex tectonic environments.