The combination of tidal deformations and rotation can destabilise planetary cores via elliptical instability, a mechanism also observed in localised strained vortices. It has been shown to generate turbulent flows composed of non-linearly interacting waves and strong columnar vortices with varying respective amplitudes, depending on control parameters and geometry. This nonlinear saturation is reminiscent of classical homogeneous rotating turbulence sustained by an arbitrary forcing where coherent structures invariant along the rotation axis naturally emerge from initially isotropic conditions. We present a suite of numerical simulations to investigate the saturation regime relevant for planetary applications and the transition from vortex-dominated to wave-dominated regimes. This is achieved by simulating the growth and saturation of the elliptical instability using a shearing-box approximation and adding frictional damping to the geostrophic component only, to mimic its interaction with boundaries. We reproduce several experimental observations within one idealised local model, and a wave-dominated regime that exhibits many signatures of inertial wave turbulence is characterized for the first time. Finally, we clarify which regime is expected in geophysics by combining recent experimental and numerical results.