



## Lower Hybrid Drift Instabilities at Comets

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The environment of a comet includes plasma density gradients. We consider plasma models where the electrons are magnetized, while the ions are not. In these models currents caused by gradient drifts can cause lower hybrid drift waves. The waves may then accelerate electrons. Our models are closely related to observations by Rosetta at comet 67P. We consider both large-scale gradients caused by the gradual decrease of the plasma density away from the comet, and small-scale gradients caused by, e.g., the fine-structure in jets. Instabilities caused by gradients in the plasma origination from the comet are compared with instabilities caused by interaction between the solar wind and the cometary plasma. Wave instabilities at a comet are also compared with instabilities in ion diffusion regions observed by multi-spacecraft missions in the Terrestrial magnetosphere.