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Thin current sheets in the Venus magnetotail

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We use the data of Venus Express mission to study the structure of the Venus current sheet near the planet based on the statistics of 17 crossings observed during steady conditions in the solar wind in 2006-2010. We have found out that the Venus current sheet can be actually rather thin (∼300-1000 km). The thickness can be comparable with the particle Larmor radius. We have found that the magnetic field profiles of the current sheet can be single-scale and double-scale. We have used plasma measurements to show that double-scale current sheets are due to oxygen picked up population. Double-scale current sheets are in fact thicker than single scale sheets. However, being rather thick (∼RV/2) these current sheets are still several oxygen gyroradii thick. Finally, the observed thin sheets can be satisfactorily interpreted in the frame of the thin anisotropic current sheet model.