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Ion temperature anisotropies in Venus plasma environment

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The ion velocity distribution is a key to understanding the interplay between ions in the plasma and the waves. Any deviation from a Maxwellian distribution may be unstable and result in wave generation.
We use data from ion mass spectrometer IMA (Ion Mass Analyzer) and the magnetometer MAG onboard Venus Express to investigate what unstable ion distributions are found in the plasma environment of Venus.
Especially we examine temperature anisotropies, that is, the difference between the ion temperature parallel and perpendicular to the background magnetic field. Scientific questions addressed include: To what extent does such anisotropies occur? Where in the magnetosphere do they occur? What type of waves would we expect them to generate? We produce spatial maps of the average ratio between the perpendicular and parallel temperatures, both for proton and heavy ions (atomic oxygen, molecular oxygen and carbon dioxide).