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Hot Prograde Flows in Active Regions

The EVE Sun-as-a-star Doppler information has produced a surprising result: hot active-region loops sustain steady flows on the order of 100 km/s. The flows only occur at the higher temperatures (lines of Mg XII and Fe XIV, for example), making the observation very differential and redundant. Both of the EVE spectrographs (MEGS-A and MEGS-B) show the effect. The flows are invariably in the prograde sense (E limb blue, W limb red), independent of latitude or solar cycle. EVE detects the flows directly by the bulk Doppler shift of lines from isolated limb regions, and also systematically via cross-correlation of AIA image centroids with EVE Doppler shifts.

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