

## Ice-Core Site Selection: Detection of Slow Motion and Low Strain Rates on Polar Ice Sheets

**E.D. Waddington** » Dept of Earth and Space Sciences, University of Washington

**H. Conway** » Dept of Earth and Space Sciences, University of Washington

**C.F. Raymond** » Dept of Earth and Space Sciences, University of Washington

Greenland, Antarctica, and other ice caps retain a memory of past climate in ice-core geochemical time series. Preferred ice-core sites are at ice divides, where the annual motion is slow, but displacements are significant over the age of the climate record. Because these sites are far from fixed benchmark references, GPS measurements are essential. Because the ice is always moving, the ice-core paleoclimate records must also be corrected for displacements from deposition site to core site. To extract precipitation rates from annual-layer thicknesses in a core, cumulative vertical strain since deposition as snow must also be determined with ice-flow models constrained by modern ice-motion measurements. With UNAVCO assistance, we have conducted ice-motion surveys for all U.S. Antarctic Program deep ice-core projects since 1993, including Taylor Dome (Morse et al., in review; Waddington et al., in review), Siple Dome (Nereson et al., 1998a; 1998b), and the upcoming Western Divide core in central West Antarctica (Conway et al., 2005).

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### References

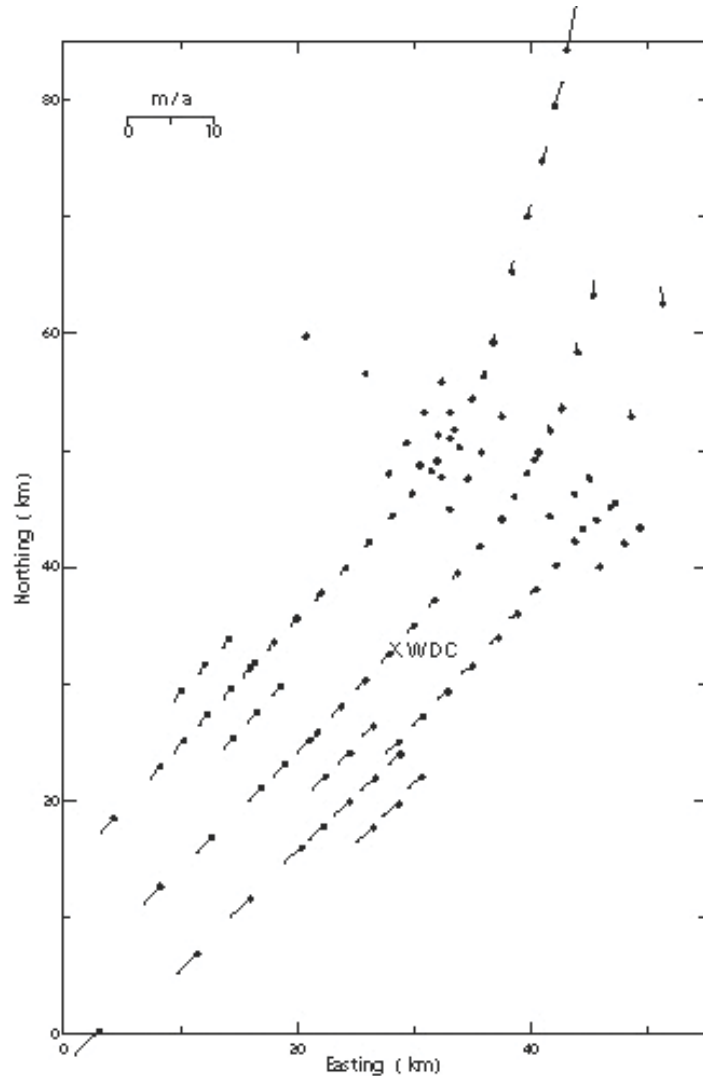
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**Figure 1.** Horizontal surface velocity field across the Western Divide in Central West Antarctica. The velocity field was derived from repeat measurements of locations of 104 survey poles placed in the ice. Drilling of a new deep ice core at site WDC (S79.4676, W112.0859) will start in 2006-07.