

## IceCube Polar Science Workshop



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# Physical properties of the South Pole Ice Core, SPC14

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Analyses of the physical properties of the 1751-meter long South Pole ice core (SPC14) have been carried out on 82 vertically-oriented samples cut from the core below the firn-ice transition on a 20-meter sampling interval. Analyses include bubble-number density, grain orientation and fabric, grain-size distributions, and grain-shape characteristics derived from the grain statistics.

We find mean grain sizes to be small and grain-growth rates to be slow in comparison to other, warmer sites that have been drilled for climate records. We also find that the grain-shape anisotropy is first observed at a somewhat shallower depth than that observed in other cores. With increasing depth, we observe the development of a strong girdle fabric in the ice, with the deepest sample from 1739 meters having eigenvalue ratios values comparable to those found in deeper ice at other sites. The fabric shows no signs of disturbance of the ice stratigraphy in SPC14 by folding, boudinage or other processes acting at a large enough scale to affect the paleoclimatic records. These results are commensurate with the mean-annual temperature and ice-flow regime at South Pole.

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