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Exploring the Final Frontier of the Solar System

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In December 2004 at 94 AU, Voyager 1 crossed the termination shock marking the abrupt slowing of the supersonic solar wind and began exploring the region where the solar plasma presses outward against the local interstellar medium. The flow in this region is much slower than expected and the turbulence is different than in the supersonic solar wind. In contradiction to many predictions that the shock was the source of medium energy anomalous cosmic rays, their intensity did not peak at the shock, indicating their origin remains to be discovered. However, the shock is the source of low energy ions that reveal new aspects of the acceleration process. Recent results from Voyager 2 at southern solar latitudes suggest that the shock may be 7 to 10 AU closer than at Voyager 1 in the north, consistent with an asymmetric distortion of the heliosphere by a local interstellar magnetic field. The Voyagers will provide more insight into this outermost region of the heliosphere and what lies beyond as they continue their journeys to interstellar space.