

If It's Loose and Dry SIR Can See Thru It

The Sahara Desert unmasked! This is the possibility raised by a strip of film bearing picture-like data from SIR-A, a synthetic-aperture imaging radar system that had been carried over the region on the space shuttle's second test flight in November, 1981.

Science News (A Science Service Publication), for June 26, 1982, describes the excitement felt by U.S. Geological Survey's Carol Breed when she rolled the film out on her light table: "My God, where is the sand sheet?" The image revealed a vast network of channels, "their dendritic patterning reminiscent of riverbeds and tributaries, from little ditches just at the radar's limit of resolution to huge swaths as wide as the Nile Valley." Maurice Grolier, one of Breed's colleagues, had been to the area barely a month before. He had driven over the terrain and testified that there was no trace of what the imagery showed. "Just thousands upon thousands of square kilometers of sand, sand; sand, in places piled tens of meters thick."

In effect, the radar acted as an x-ray eye. Instead of reflecting the radar beam, as a solid surface or a layer of water will do, the low-density surface of loosely packed sand allowed most of the beam's energy to pass right through and be reflected by whatever lay beneath. Modifications of the method will be tried on another shuttle flight in the summer of 1984 on SIR-B, being developed at Jet Propulsion Laboratory in Pasadena, CA, under direction of Charles Elachi.

Most of the geological work on the Saharan core that was unveiled is being done at the USGS Branch of Astrogeologic Studies in Flagstaff, AZ. The desert studies group is headed by Jack McCauley.