Remotely Sensed Sea Surface Temperature

A. April 11, 1983

B. February 19, 1982

D. April 11, 1983

C. October 2, 1981

Description

The satellite images shown depict ocean circulation patterns in the Gulf of Mexico based on sea surface temperature recorded from sensors aboard the NOAA-7 satellite. Temperatures were estimated using channels 4 and 5 of the Advanced Very High Resolution Radiometer (AVHRR) after renavigation to a common map and correction for atmospheric absorption of the infrared radiation emitted by the ocean. Each panel is a composite of several images to allow partial removal of clouds. Warmer waters are shown by reds, cooler ones by blues. White areas are clouds; gray areas are land. The dynamic short-term patterns in temperature and circulation illustrated are often masked by the averaging process used to prepare mean surface-temperatures and surface-current maps (Maps 1.07-08 and 1.13-14) (Legeckis, pers. comm.).

Panels A and B show the temperature distribution for April 11, 1983, and February 19, 1982, respectively. The Loop Current appears as a warm water tongue extending into the Gulf from the Yucatan Straits. Eddies and filaments extend from the main current. Cold coastal waters appear along the coasts of Texas and Florida. These panels should be compared with the sea surface temperature maps (1.07 and 1.08).

Panel C depicts sea surface temperature on October 1, 1981 when very little temperature contrast was apparent. In this instance, the Loop Current cannot be detected by the temperature signal, although it is still present, as evidenced by the image shown on Map 2.05

Panel D is an enlargement of the central portion of Panel A (April 11, 1983) showing a large warm eddy that has separated from the Loop Current and is drifting west. Cold freshwater, discharged from the Mississippi and Atchafalaya deltas, also appears on the image. Note the numerous eddies and complicated structures of the surface waters.

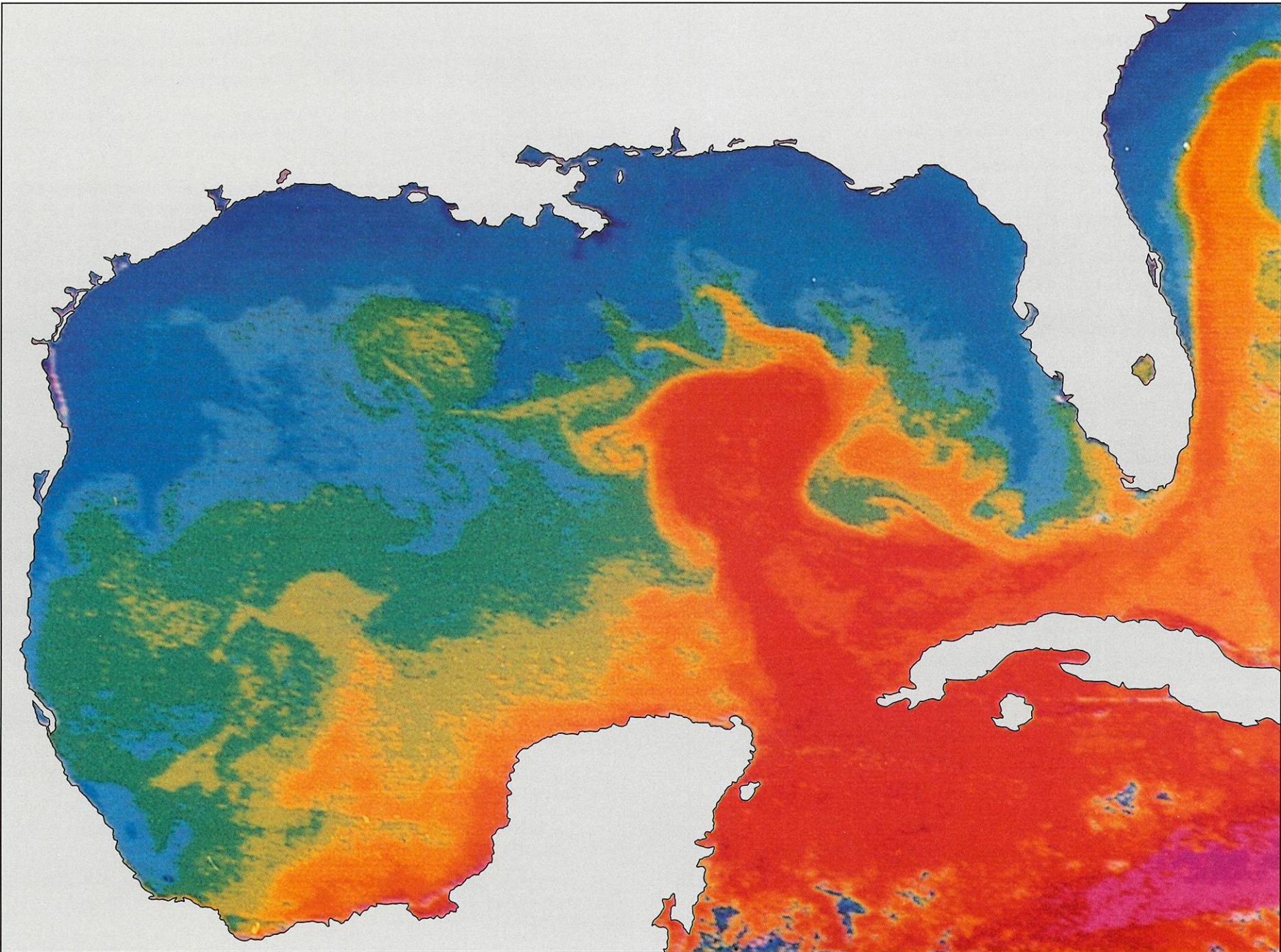### Temperature in Degrees Celsius

These panels were processed at NOAA/NESDIS on an interactive VAX computer system. The VAX image display software and navigation systems were supplied by Robert Evans, Otis Brown, James Brown, and Angel Li of the Rosenstiel School of Marine and Atmospheric Sciences at the University of Miami. The atmospheric correction algorithm was supplied by E. Paul McClain of NOAA/NESDIS. Panel D is an enlargement of Panel A.
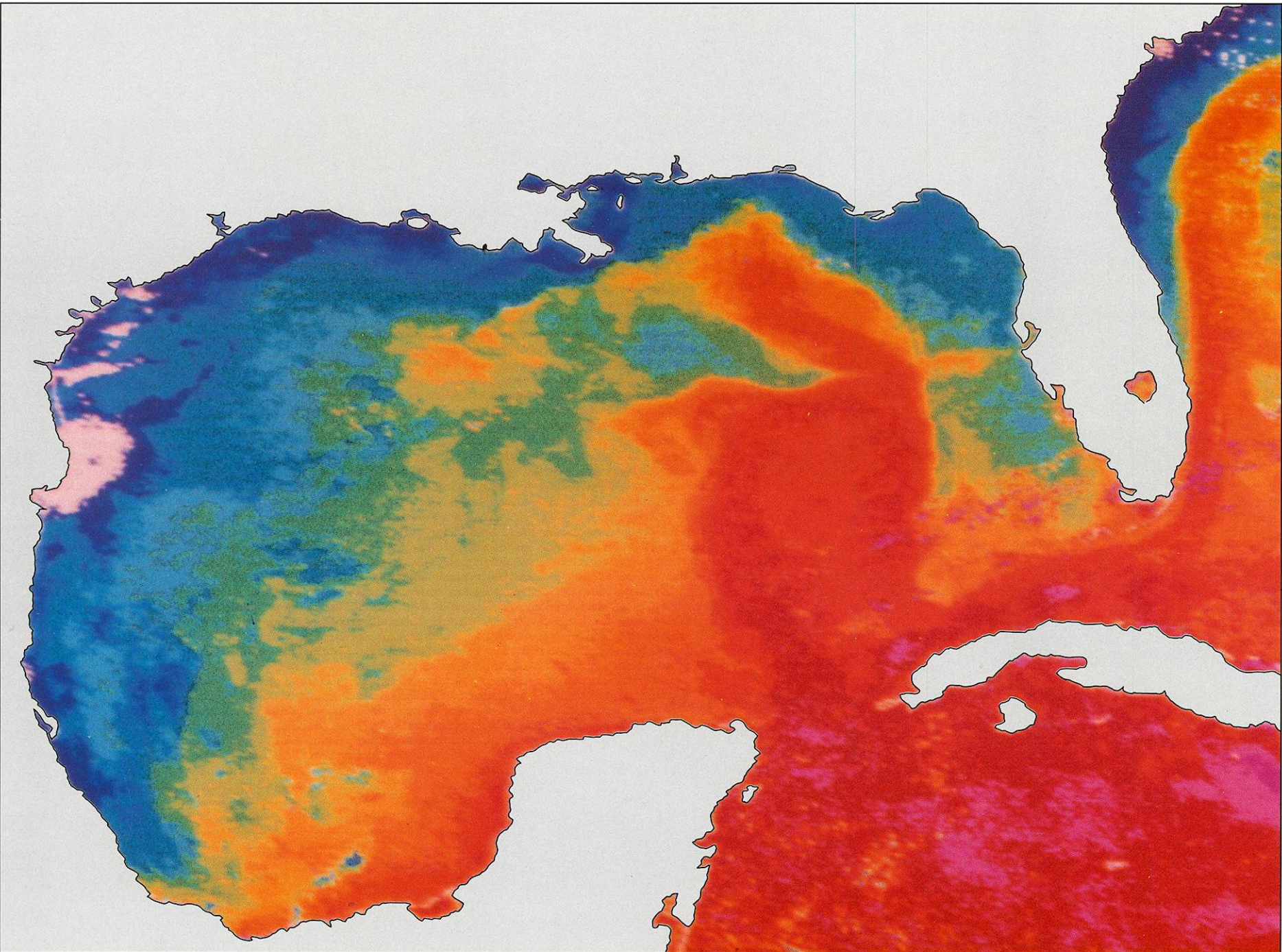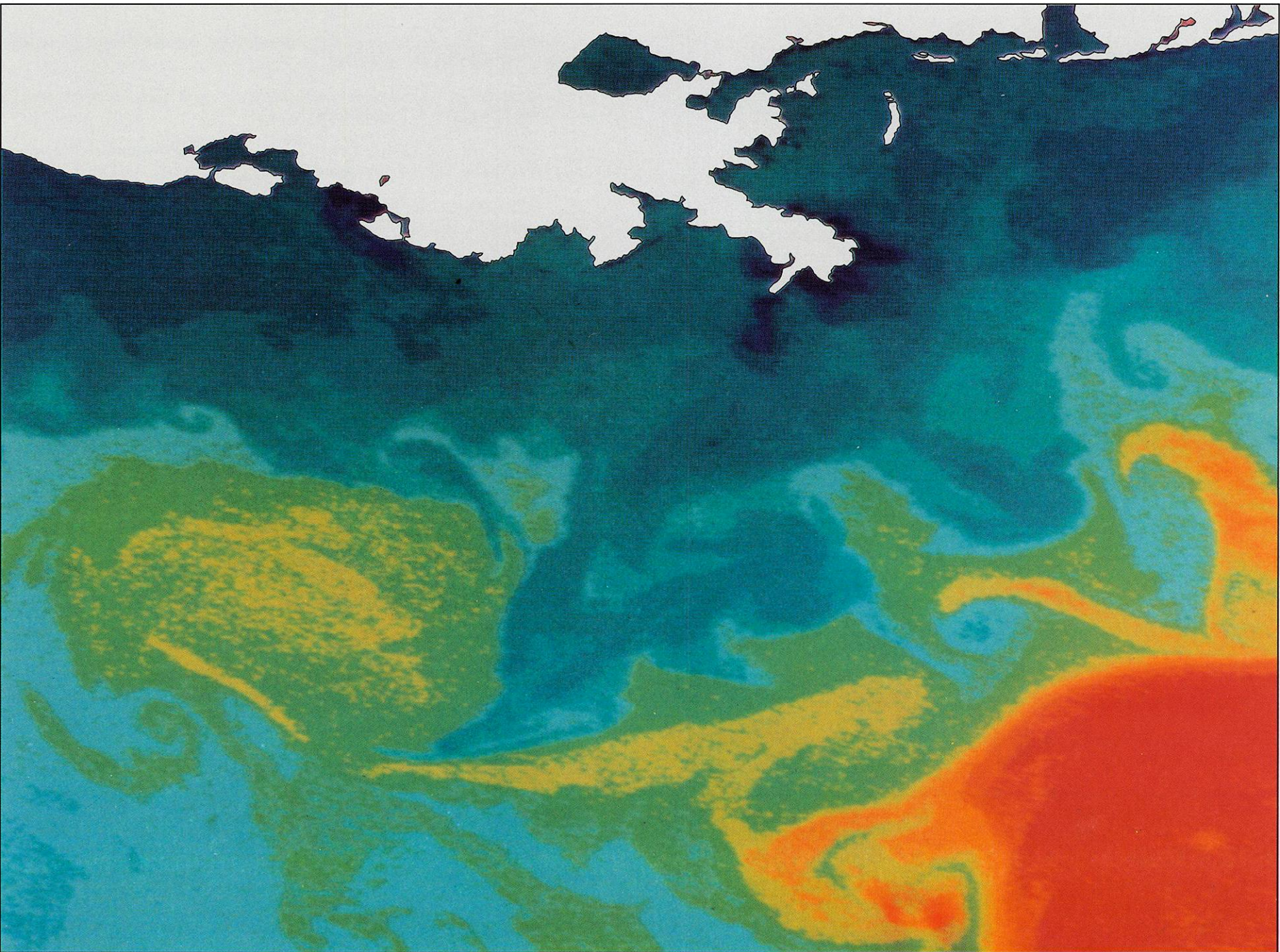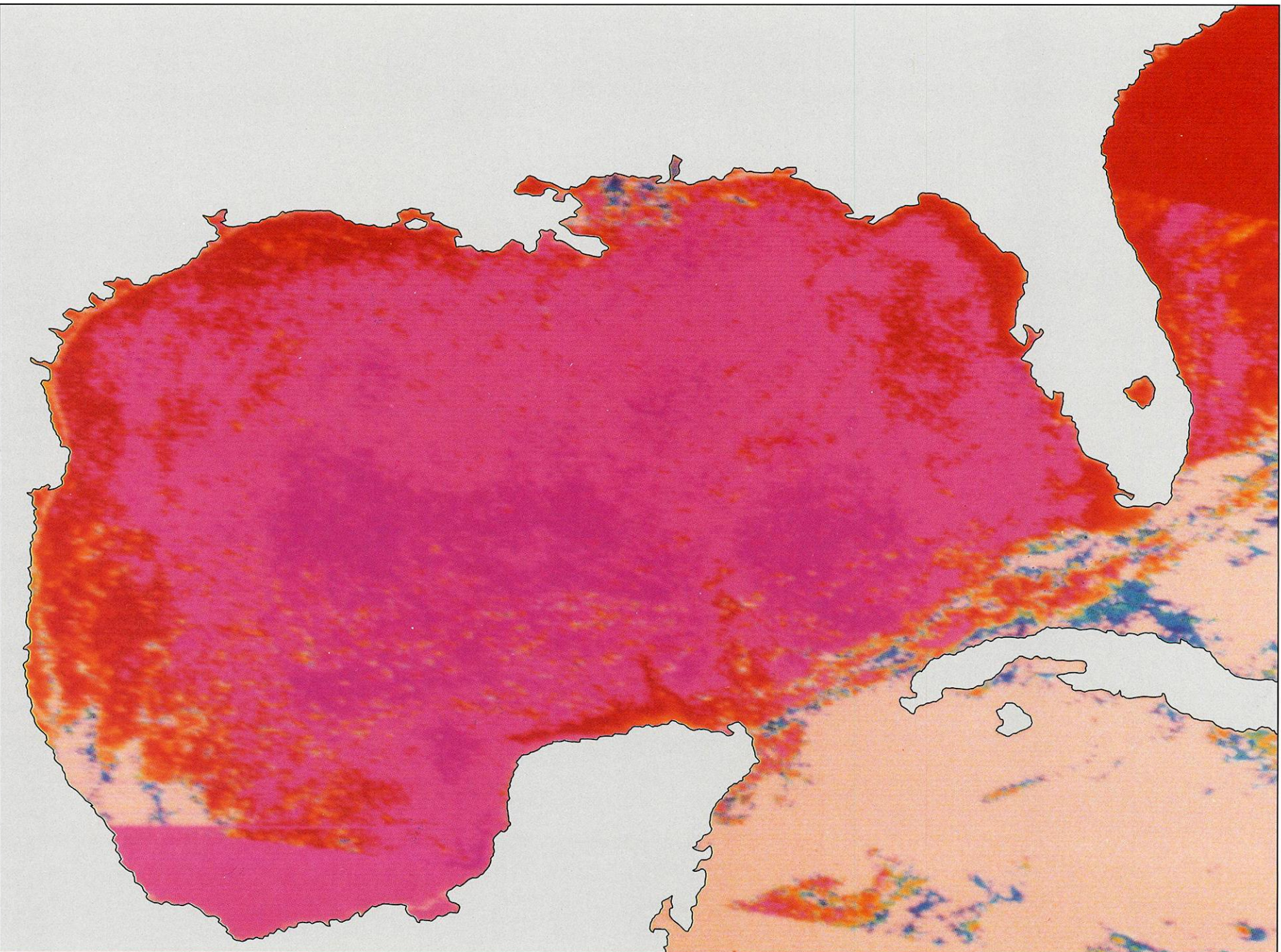
References

Legeckis, pers. comm.