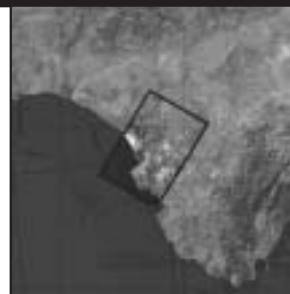
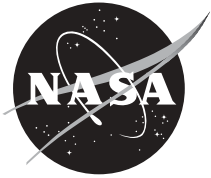




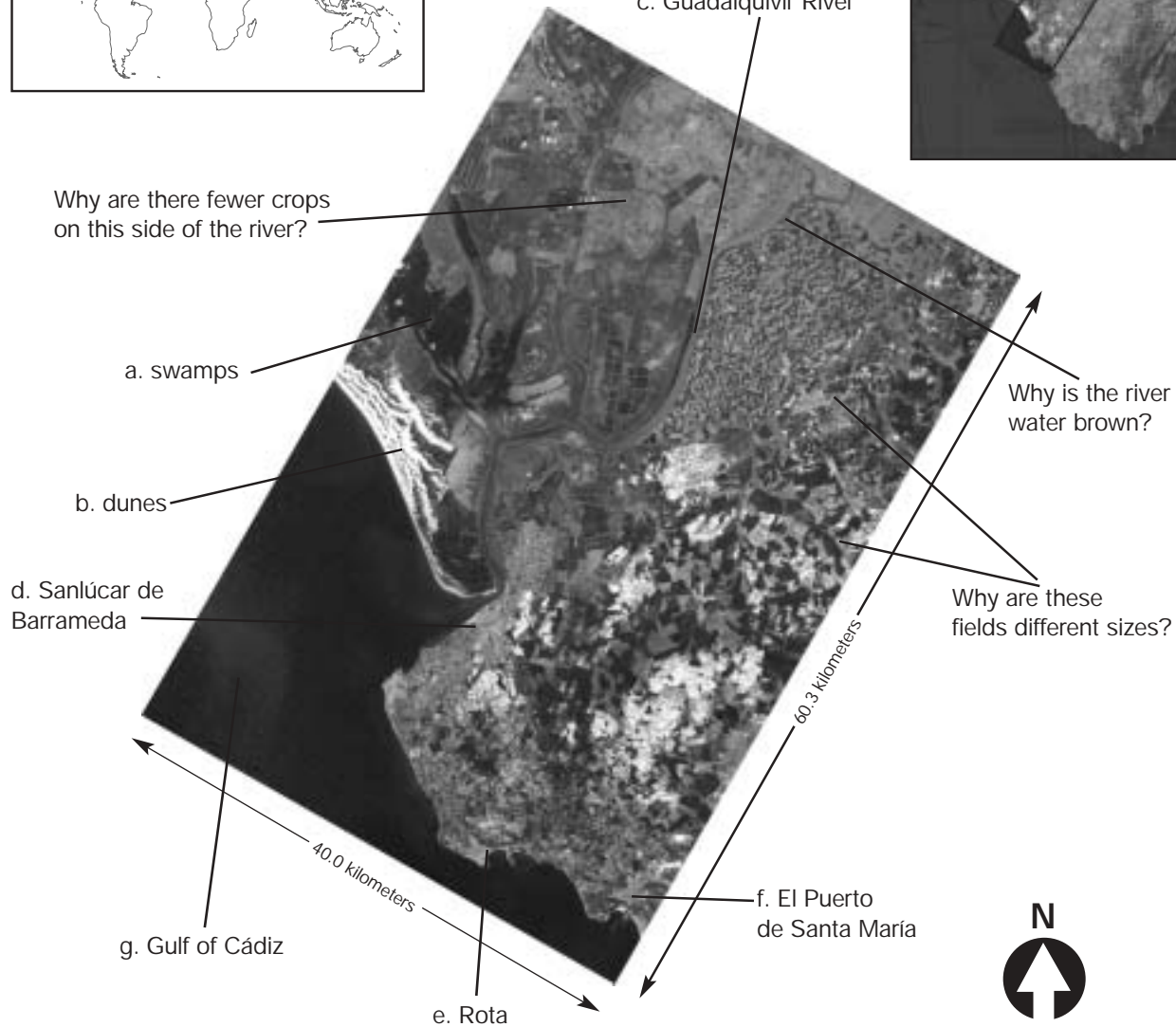
National Aeronautics and
Space Administration

Andalusia, Spain





Latitude: 36.88° N Longitude: 6.25° W
Date: March 8, 2002
Image ID #: ISS004.ESC2.068114554



Why are there fewer crops on this side of the river?

Why is the river water brown?

Why are these fields different sizes?

This coastal region of Andalusia, Spain, contains one of the most important untouched environments in all southwestern Europe. The Las Marismas (a) wetlands and the dunes of Doñana (b) are protected by a 50,000-hectare (124,000-acre) national park. The region illustrates the ways landforms change over time and area. Originally, Las Marismas was a bay on the Atlantic Ocean. Erosion from the sandy hills to the northwest formed a sand spit, which then evolved into the dunes of Doñana. This spit nearly closed off the bay, leaving only a small opening for the mouth of the Guadalquivir River (c). Though protected as both a national park and a UNESCO World Heritage Site, the wetlands are threatened by tourism, urbanization, and the use of the water for drinking and irrigation.

The Guadalquivir River is also diverted for agricultural irrigation. Due to the long growing season, local farmers grow mainly fruits. At the mouth of the Guadalquivir River sits Sanlúcar de Barrameda (d), the port from which Magellan and Columbus sailed. Its major industries are fishing and sherry.

The smaller port cities of Rota (e) and El Puerto de Santa María (f) boast fine beaches. Both cities also have harbors that can be seen to extend into the Gulf of Cádiz (g).

Additional information:
ISS EarthKAM images and lessons:
<http://www.earthkam.ucsd.edu>
NASA Spacelink:
<http://spacelink.nasa.gov>