

Toshka Lakes: Watering the Desert for Farming



Toshka Lakes, Southern Egypt – Water for a Growing Population

In Egypt, some of the water from Lake Nasser, the great reservoir formed by the Aswan High Dam on the Nile, is being pumped 320 kilometres northwest out of the Nile Valley into natural geological depressions in the Great Desert. There the water forms new lakes, visible in this MODIS image as dark blue areas to the left of the Nile River. This image (right) also shows the path of the famous Nile River.

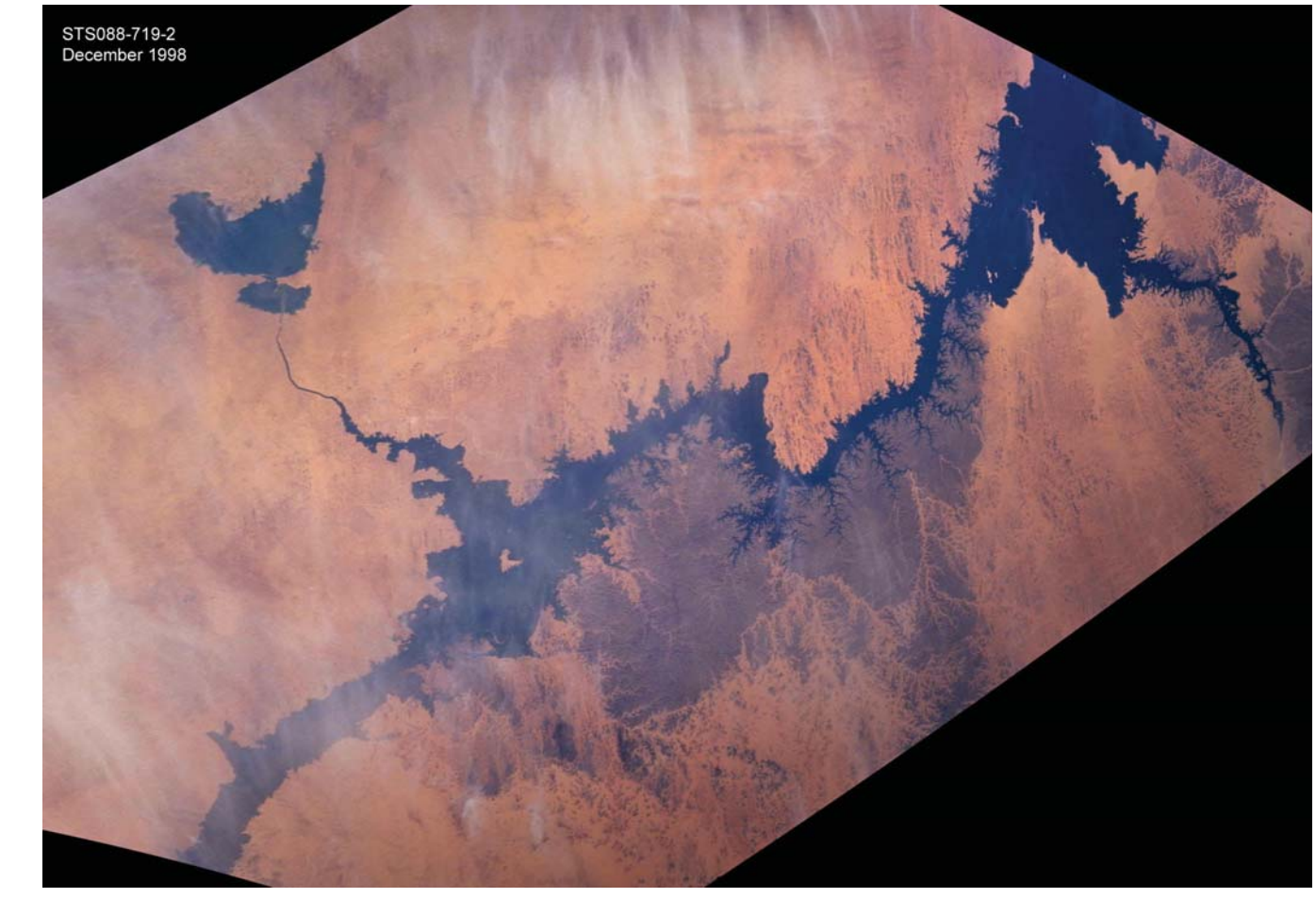
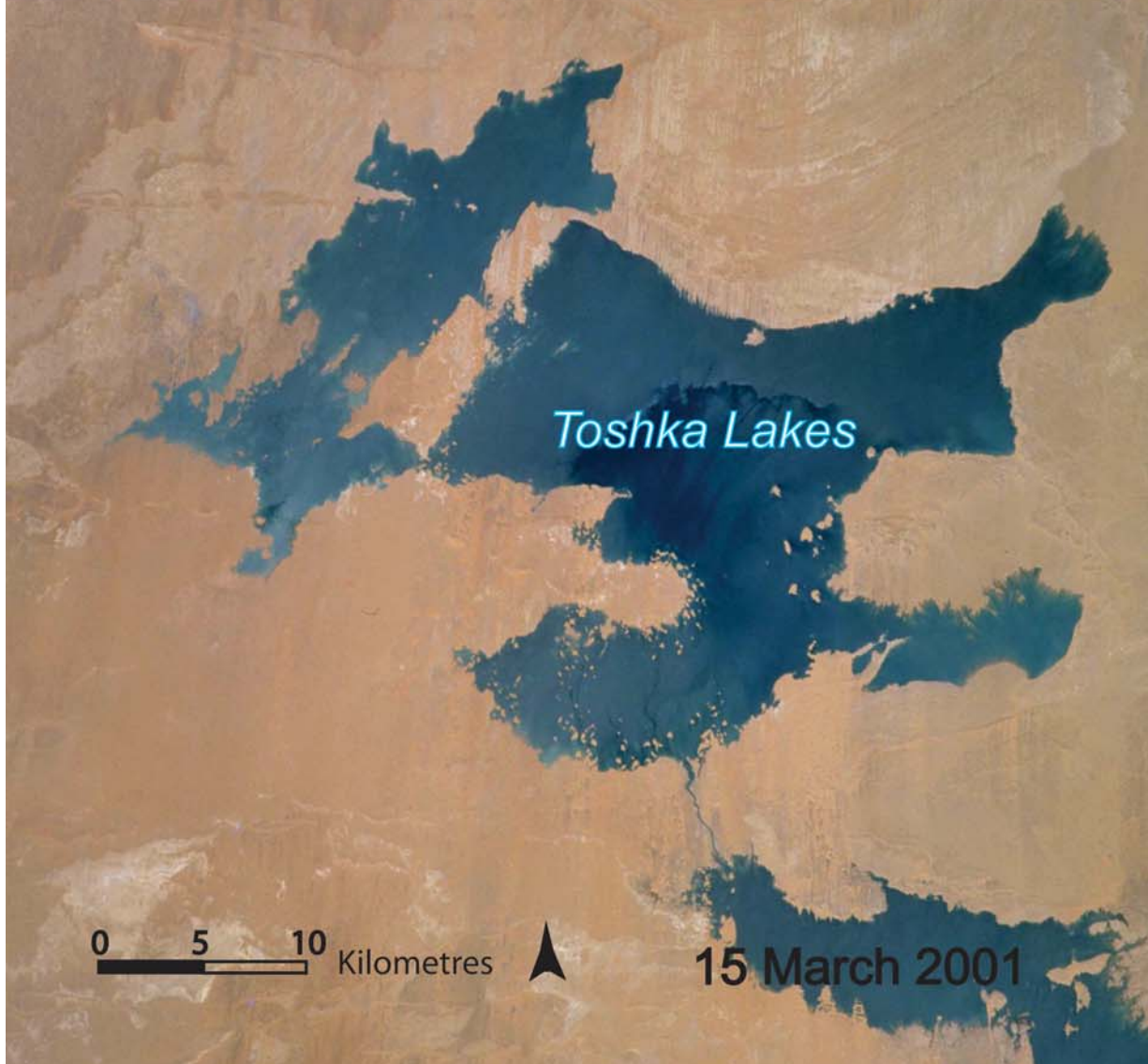
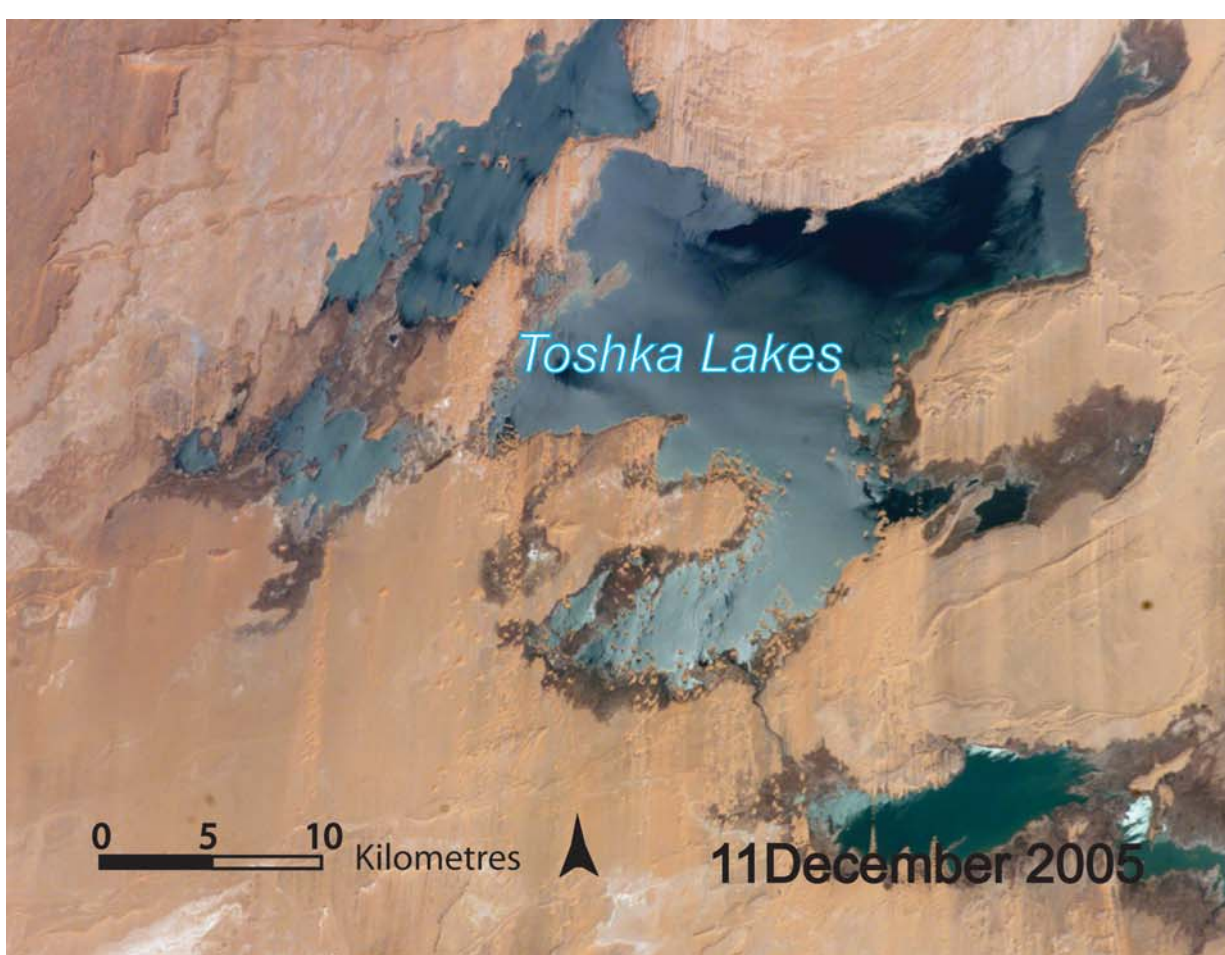
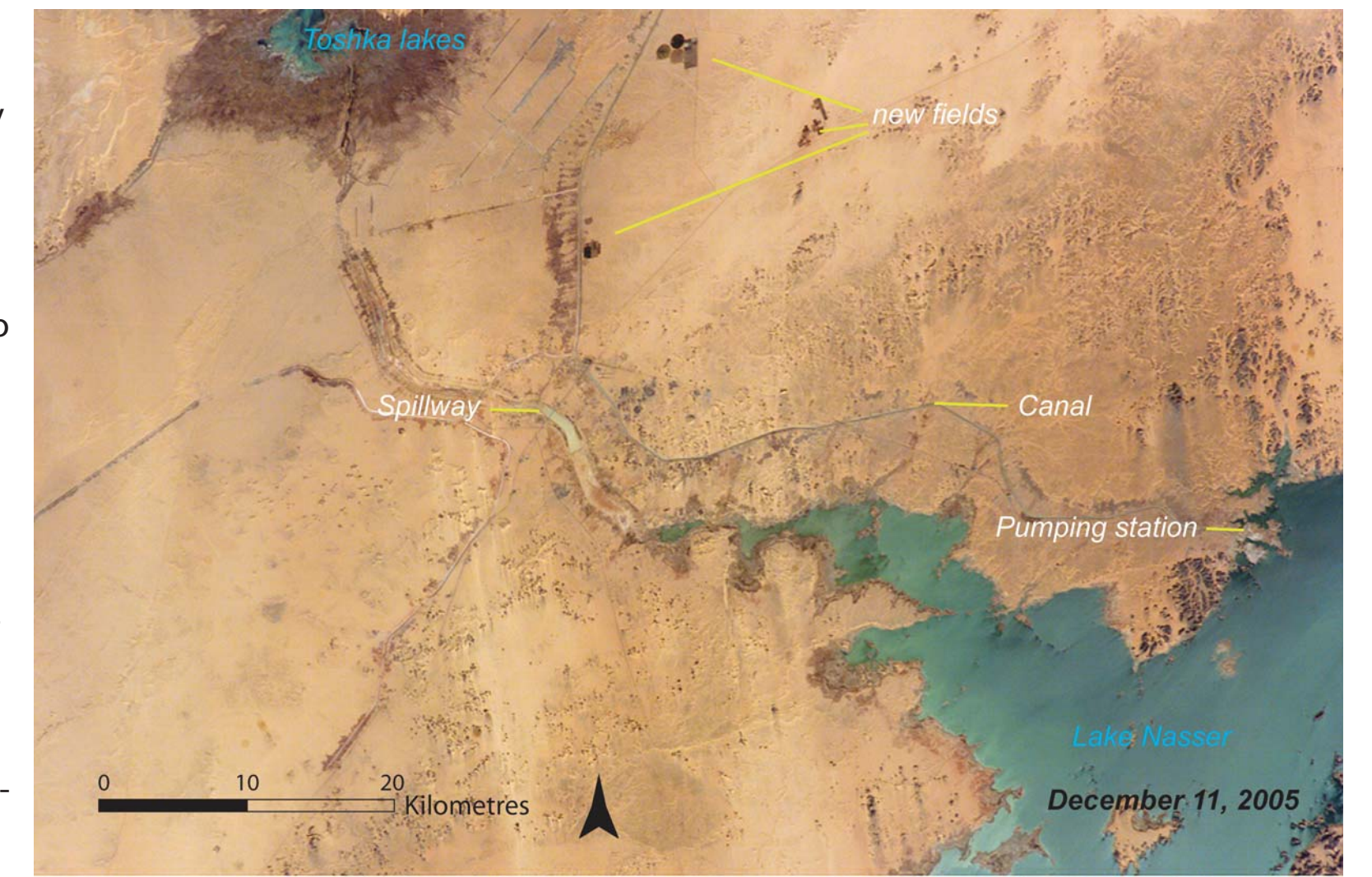
The Aswan High Dam, built in the 1960s, created major change in one of the world's largest and most famous rivers. The dam stopped the annual flooding that provided new fertile soil each year, the basis for agriculture in ancient Egypt, the world's longest existing civilization. The decrease in water flow below the dam also changed the eastern Mediterranean Sea. Prior to the dam construction, Mediterranean water was less salty than regular sea water because its waters mixed with freshwater from the Nile. Without the Nile outflow, the eastern part of the Mediterranean became saltier, affecting fish and fisheries.



Mubarek Pumping Station

This view (right) shows the completed Mubarek Pumping Station on Lake Nasser and the spillway that originally flooded the Toshka depression. The Mubarek Pumping Station is one of the world's largest and has 24 pumps that lift Lake Nasser's water into the Sheikh Zayed Canal situated 50 m higher than the lake. Since coming into service, the station has pumped over 14 million m³/day of water, irrigating over 500 000 acres of land to feed a growing population.

Over the past 20 years, the population of Egypt has risen from 20 million to nearly 70 million and it is predicted that this trend will continue, reaching an anticipated 120 million in the next 20 years. Over 60 per cent Egyptians already live in cities that are growing faster than the infrastructure to support them, with ever-increasing urbanization placing growing demands on water supplies in a country that is 95 per cent desert.

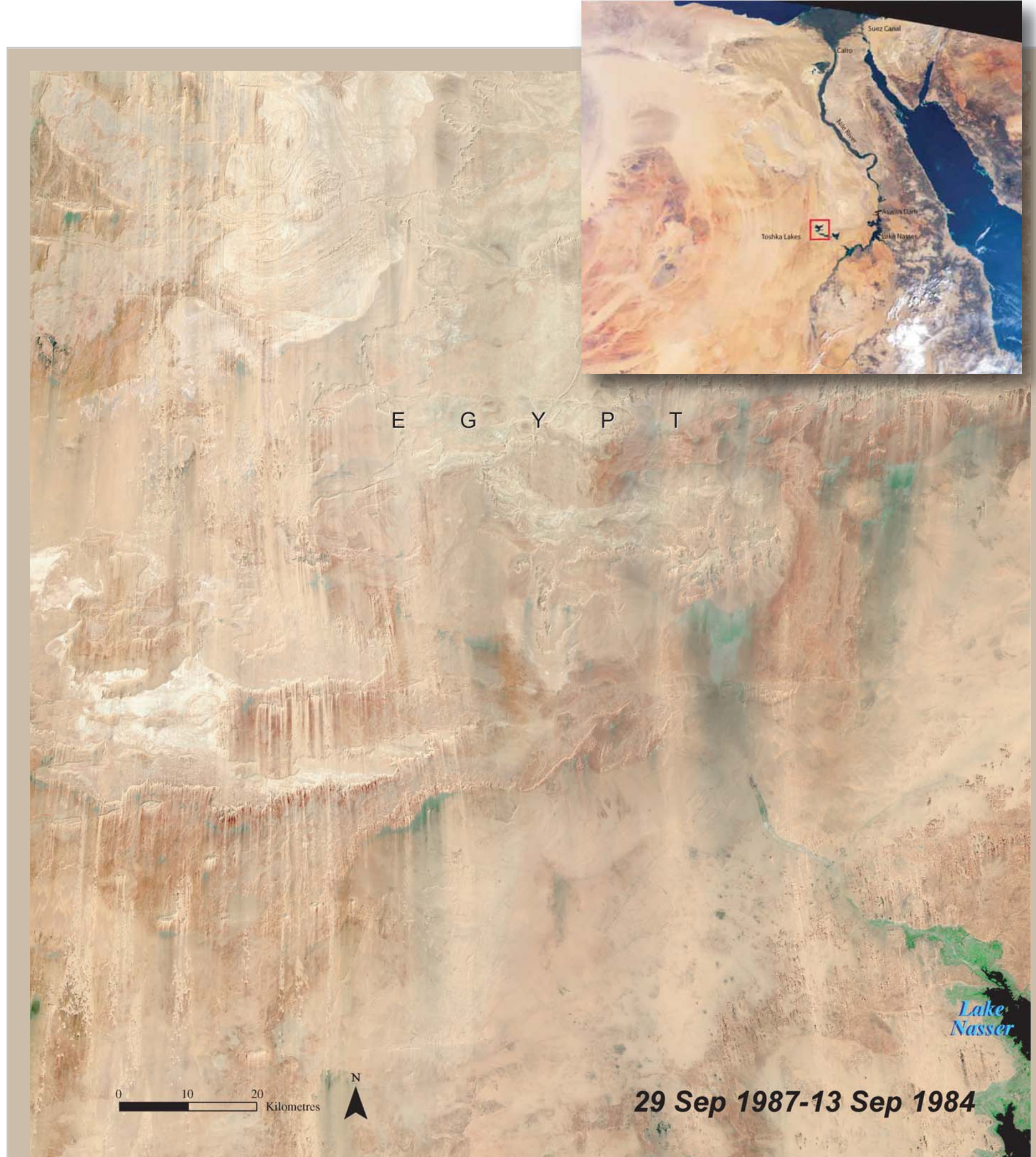


Toshka Lakes, Southern Egypt

New lakes in southern Egypt have been monitored by astronauts since 1998. This photograph (top) links together several photographs of the region taken by astronauts to show the sequence of flooding in the Toshka depression. The flooding was first documented in early November, 1998. Subsequently, three additional lakes were created by Lake Nasser overflow, as shown by the above photograph taken in December of 1998. The region will be the location of large agricultural and infrastructural developments with potential to support millions of people.

Decreasing Water Levels in Egypt's Toshka Lakes - 2005

The drought has impacted the source regions of the Nile River, reducing water flows downstream into Egypt and Lake Nasser. This pair of images (left) documents recent drops in water levels in the Toshka Lakes region. Toshka Lakes west of Lake Nasser have decreased greatly over the years, exposing the former dune fields (dunes appear as islands in the lake and along the shoreline of the top image), and leaving a "bath-tub ring" of wetlands (dark region) surrounding the lake shorelines.



Egypt's Toshka Project has transformed part of the country's scorching hot southern desert into a region of lush, neatly tended vegetable farms supplied with water and fertiliser through drip irrigation systems. These images from 1984-1987 and 2000 document the changes and success that Egypt has had in this desert reclamation project, which began in the mid-1990s and aimed to double the size of Egypt's arable land within 15 years. The project created four new lakes in the desert by drawing water through a concrete-lined canal from Lake Nasser, which was formed by damming the Nile River at

Aswan. The water flows through the canal into the Toshka Depression, where it forms the lakes visible in the 2000 image. The faint blue-green areas around some of the lakes are agricultural lands, newly created by irrigation. While providing local communities with new arable land, the Toshka Project's environmental impacts are still under study.