

An aerial remote sensing image of a city, likely Phoenix, Arizona, showing a dense urban area with a grid overlay. The image is composed of many small, square tiles, each representing a different land use or feature. The colors are predominantly red, brown, and green, with some blue and white areas. The grid lines are thin and black, creating a pattern across the entire image. The text is overlaid on the right side of the image.

Global Urban Remote Sensing: Concepts for Monitoring Urban Environments Worldwide

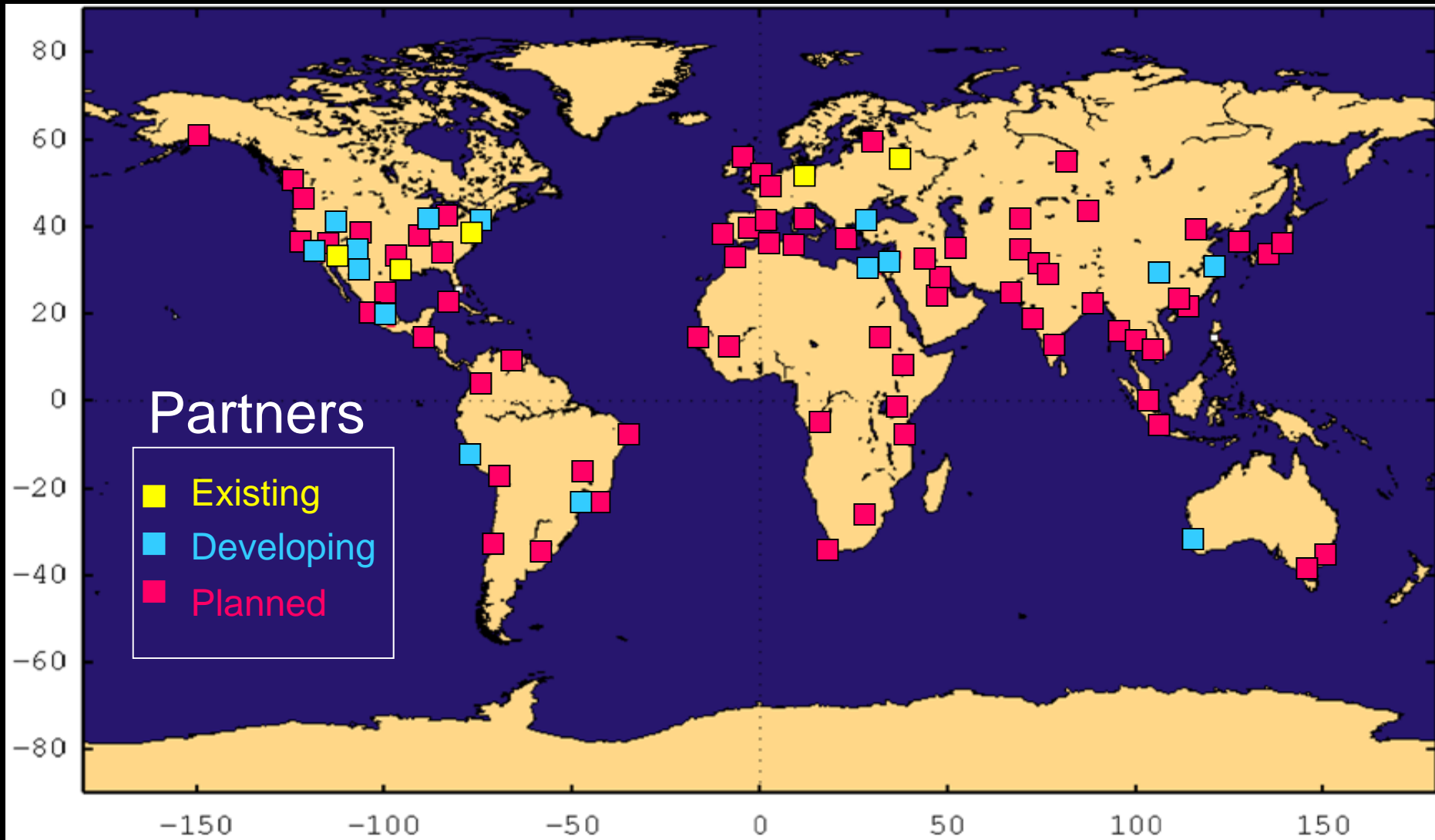
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Urban Monitoring

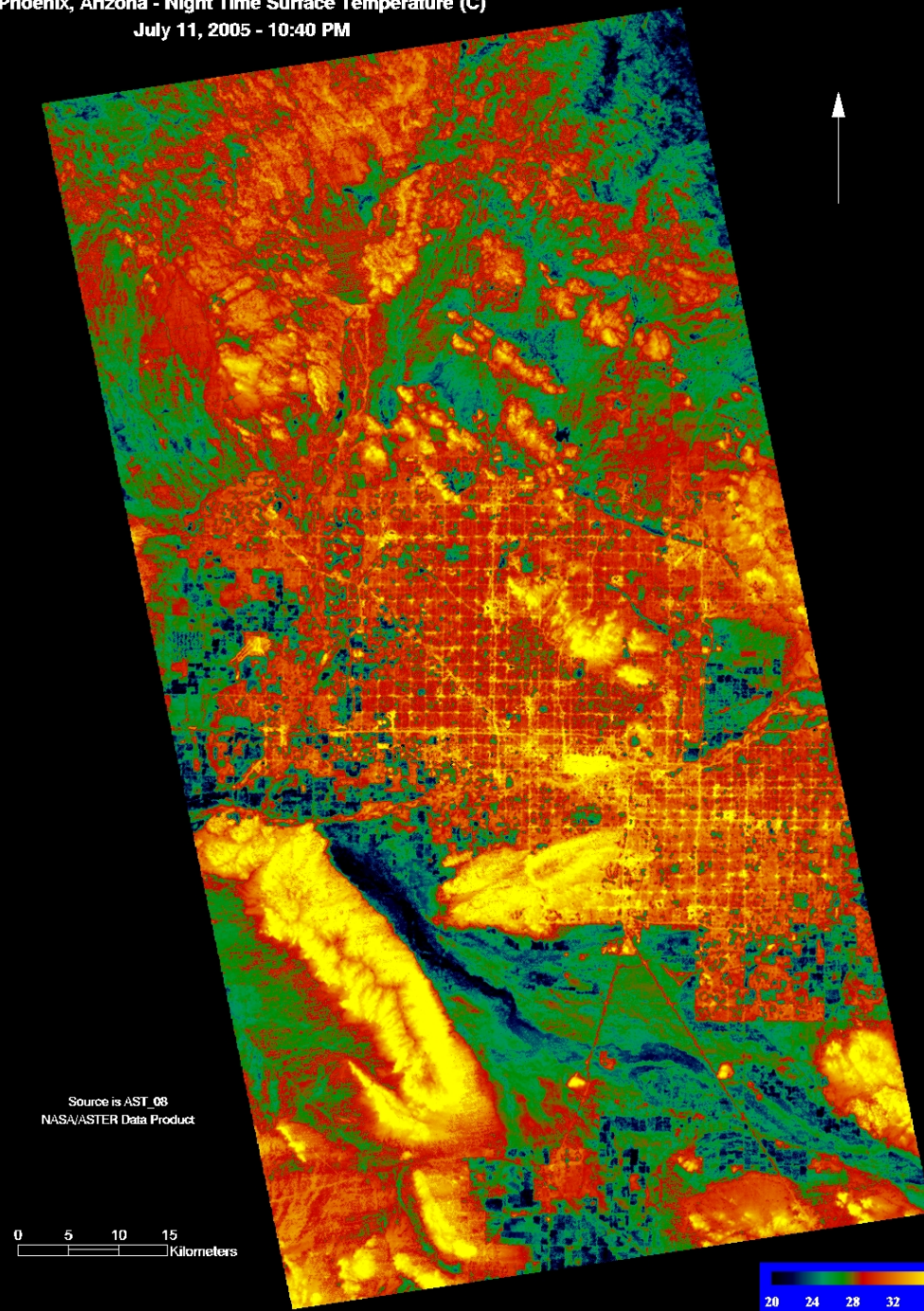
- Why?
 - Cities and urban environments are not routinely monitored nor systematically studied
 - Yet, they represent an important, and rapidly growing, component of global climate system
 - 100-Cities Project begun in 1997 as part of NASA's ASTER instrument (TERRA) science investigation
 - Efforts to date to develop uniform data sets show promise but need new, global observations

100 Cities Project:

Standardized, repeated urban remote sensing



Phoenix, Arizona - Night Time Surface Temperature (C)
July 11, 2005 - 10:40 PM



Urban Heat Island Maps

Phoenix – Nighttime

ASTER Surface
Temperature

July 11, 2005

Max Daytime
Temperature
43 °C / 111 °F

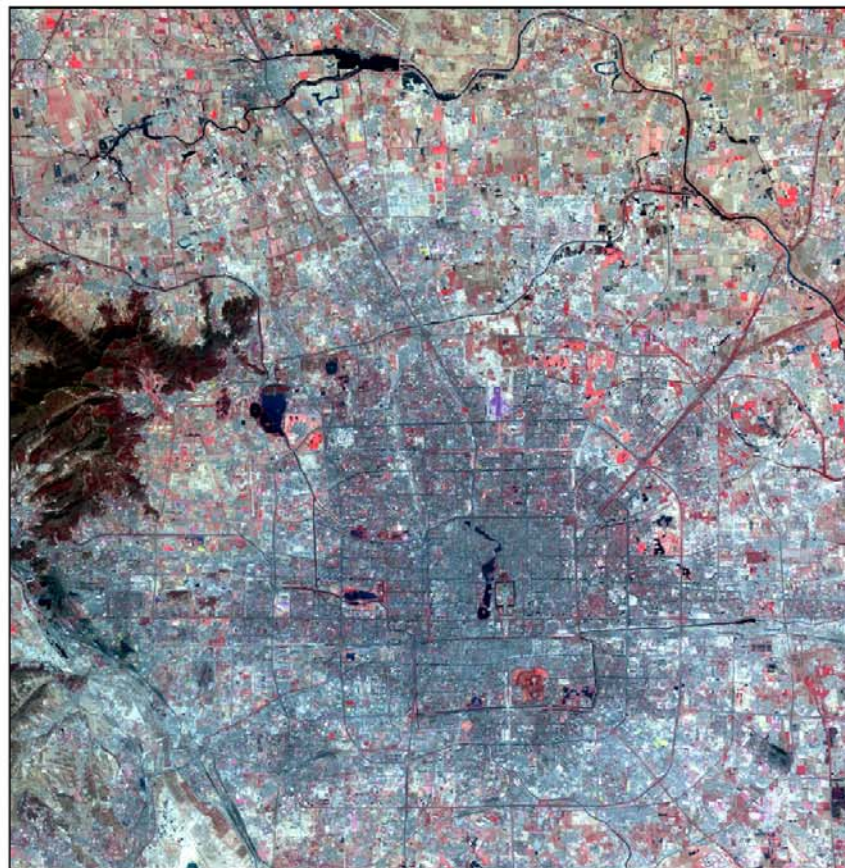
<u>Time</u>	<u>Temperature</u>
10:51 PM	98.1 °F / 36.7 °C





September, 1978 - Landsat MSS

Band 3 (R), 2 (G), 1 (B)
Ground Cell Resolution - 79m



April, 2004 - ASTER

Band 3 (R), 2 (G), 1 (B)
Ground Cell Resolution - 15m

0 5 10 20 Km

北京 Beijing



ASU ARIZONA STATE UNIVERSITY



CitySat Concept

- Small, focused mission that provides frequent (≤ 3 day repeat cycle) observations of cities worldwide
- Research science, not “operational”, approach
 - Complements large missions
 - Rapid respond to new discoveries and needs
 - Opportunity to try new approaches and observations
- Small instrument approach
 - What can be done with existing, low-cost instruments
 - Not, what is everything everyone might want to measure