

# ***Cosmic Background Radiation***

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# *Lecture Plan*

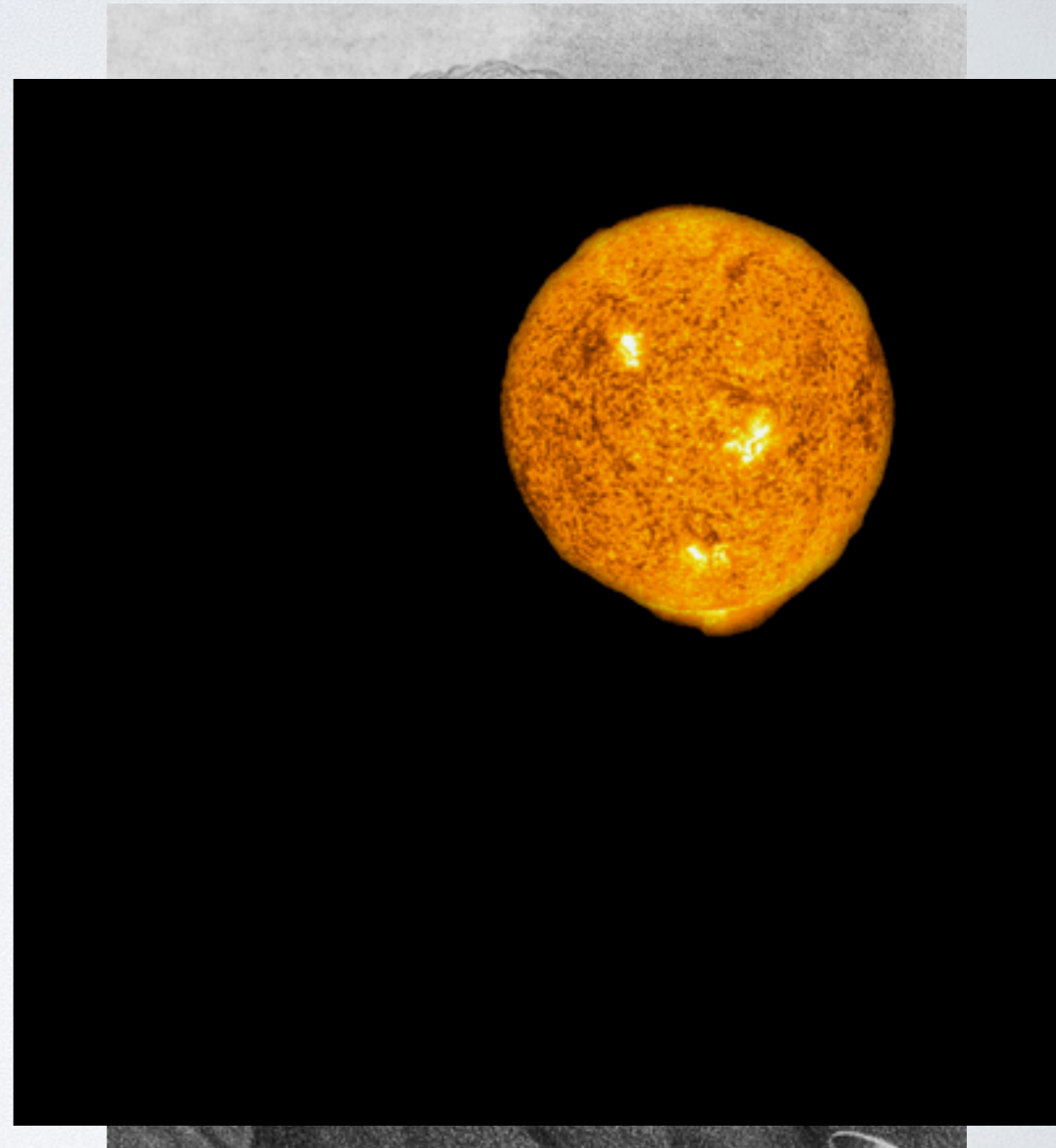
- Cosmic Background Radiation (June 1st)
  - whiteboard & slides
- Cosmic ***Gamma-ray*** background (June 2nd)
  - slides
- Cosmic ***Optical/Infrared*** background (June 3rd)
  - slides

# *Terminology*

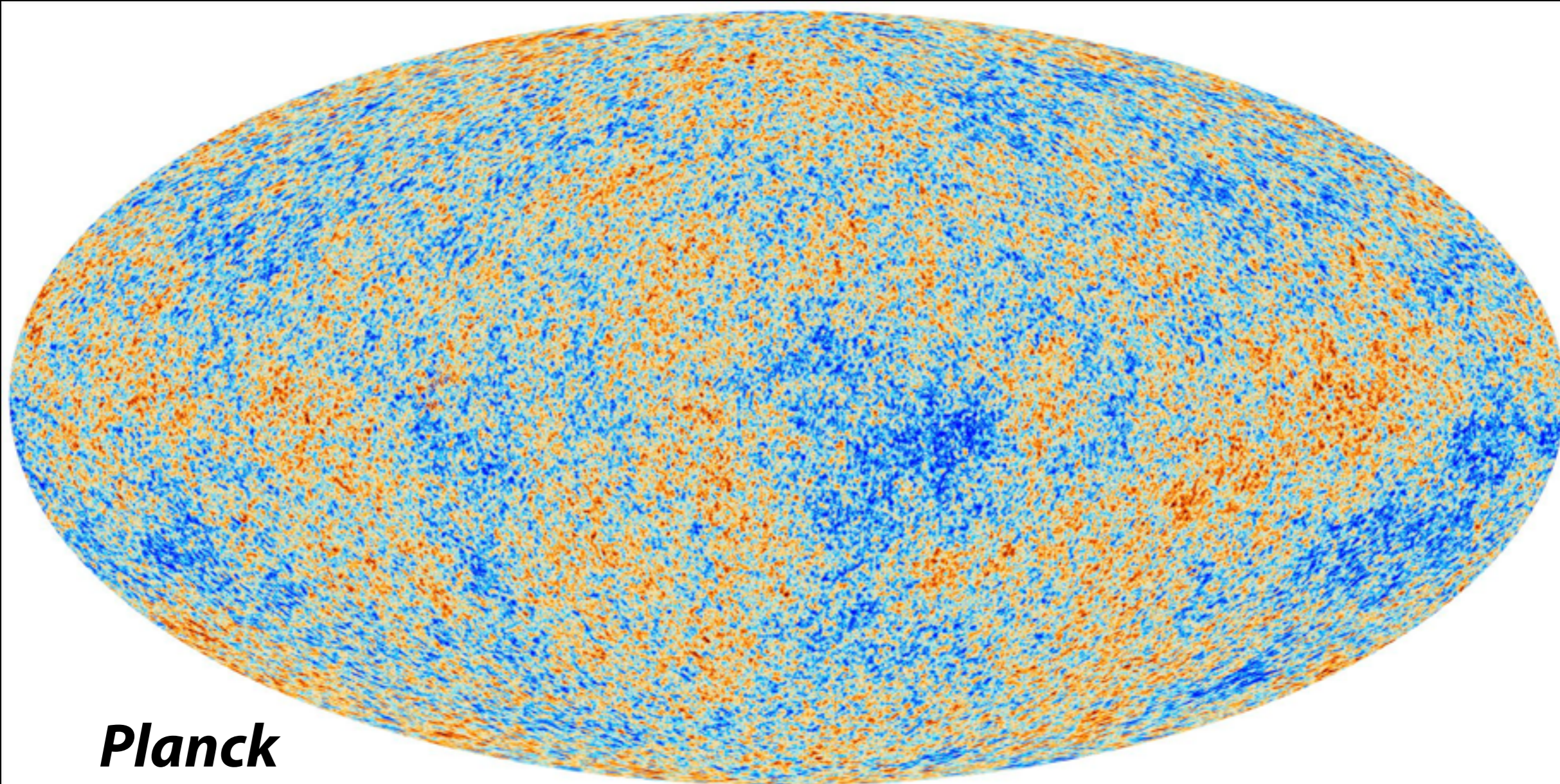
- In literature you will find CGB, EGB, EGRB, IGRB, IGB.
- In this talk,
  - the Cosmic Gamma-ray Background (CGB)
    - representing resolved+unresolved (Total) components.
  - for unresolved component,
    - I would say the unresolved CGB.

# *Olbers' Paradox*

- Heinrich Wilhelm Matthias Olbers (1758-1840)
- *"Why is the sky dark at night?"*
- If the Universe is infinite and has infinitely many stars, the sky should be as bright as the surface of the Sun.
- Answer: the Universe is ***not*** infinite.

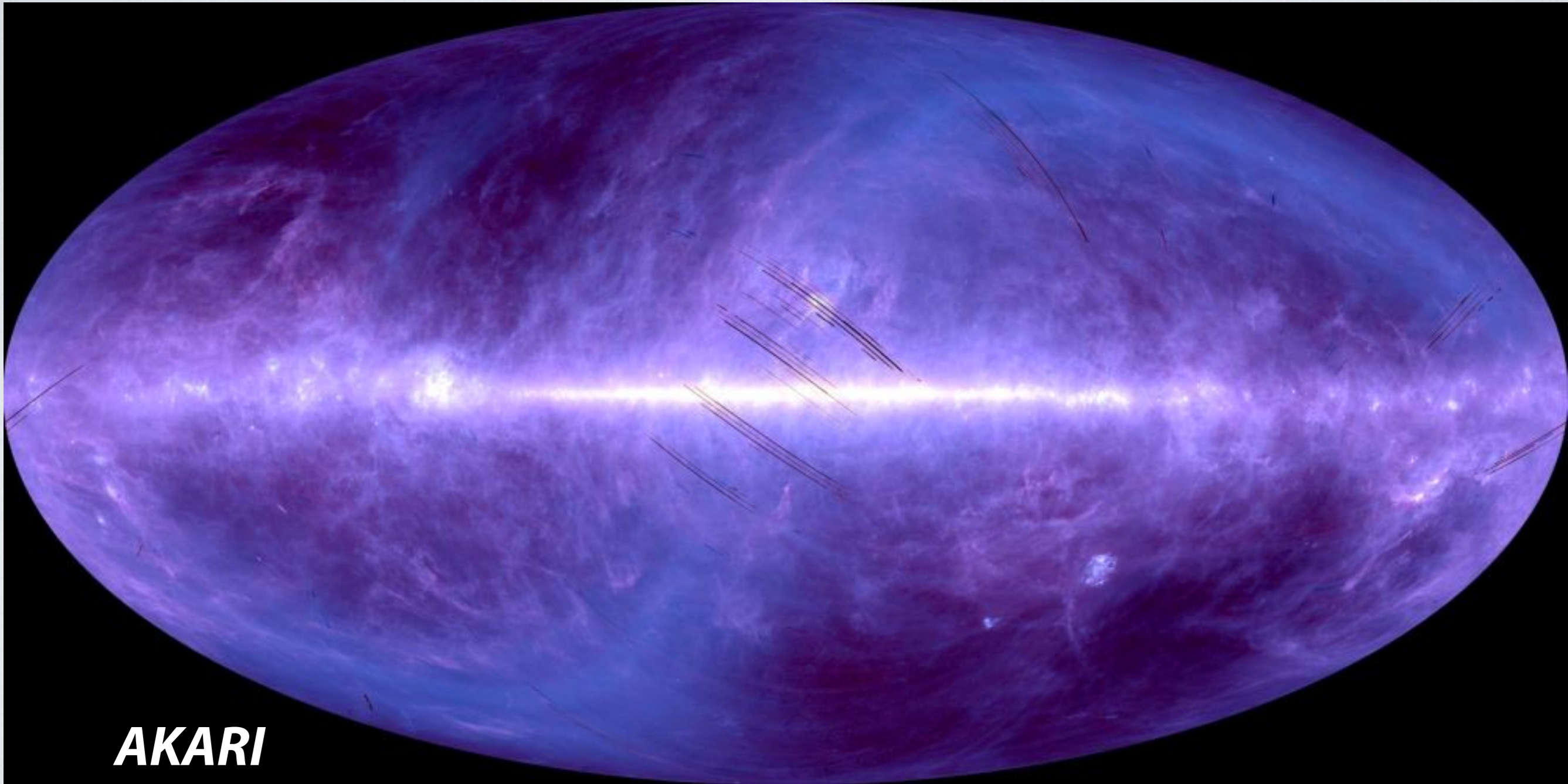


# *Sky in Microwave*



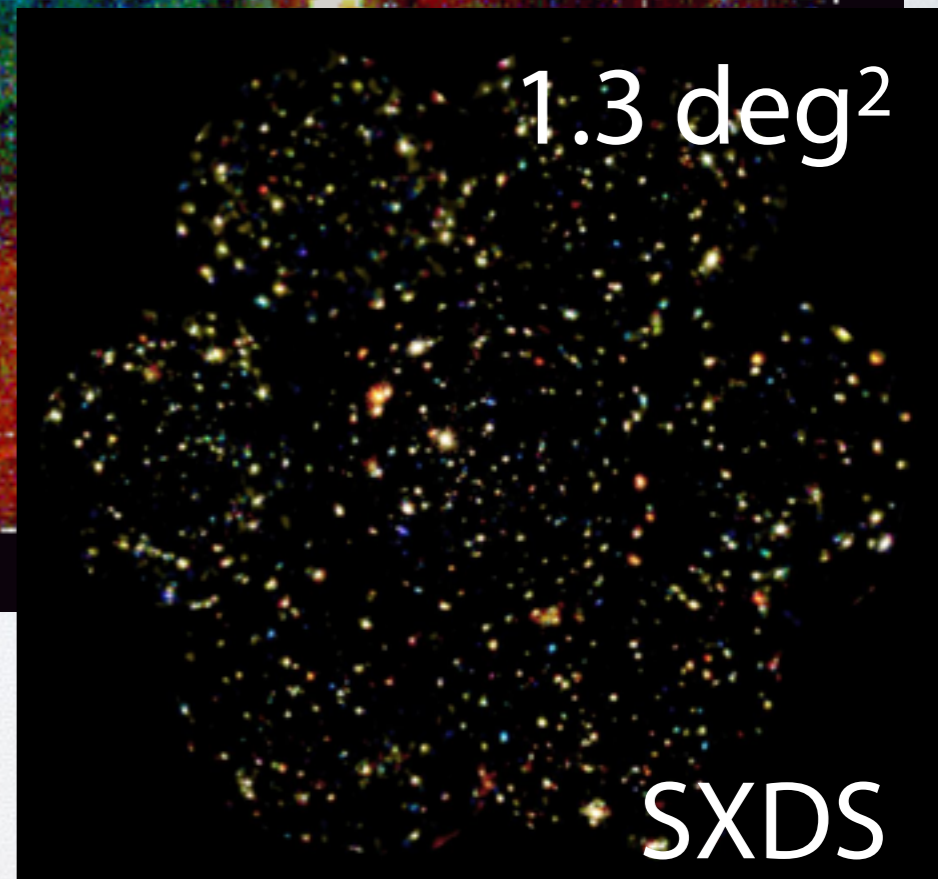
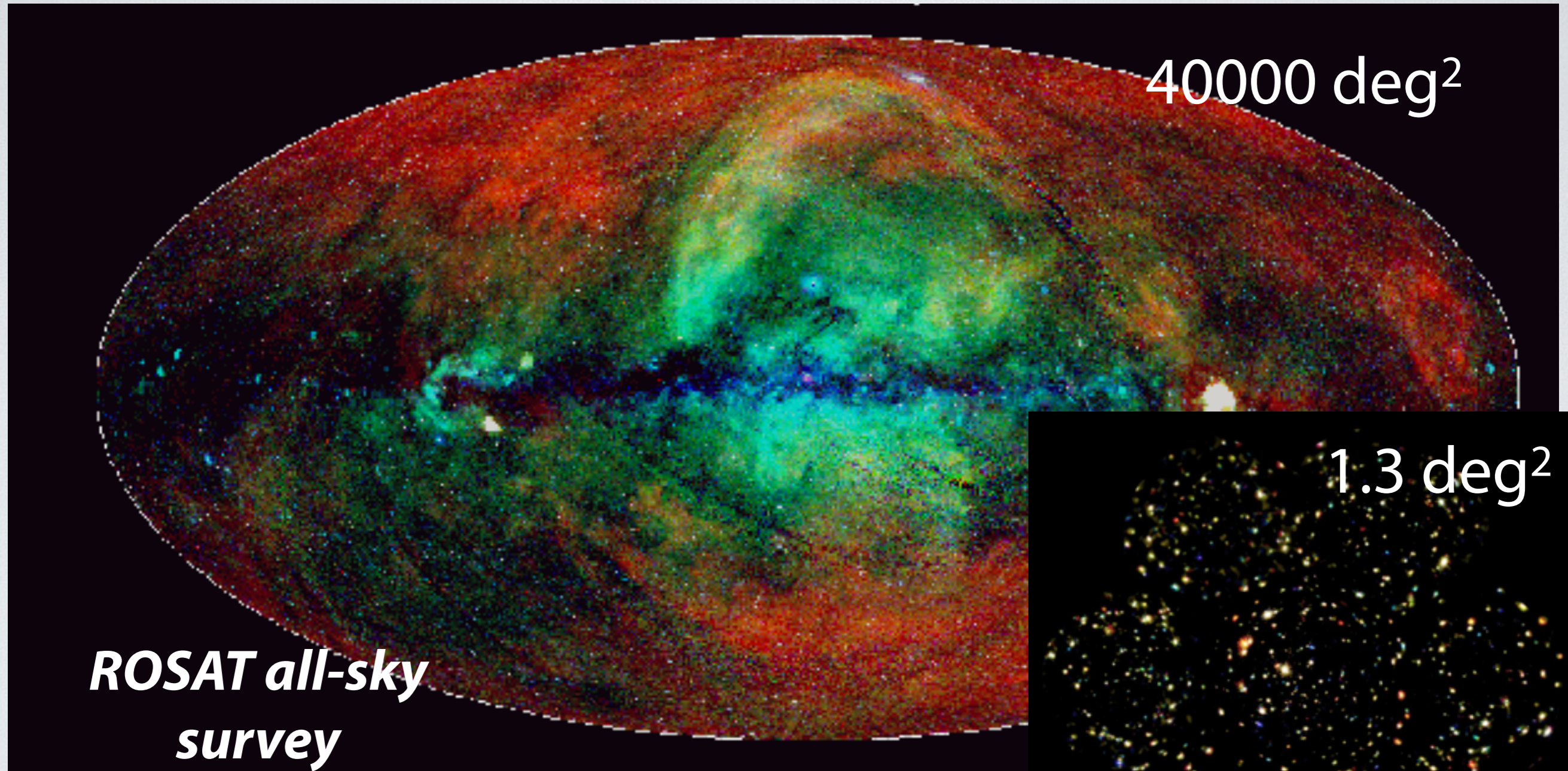
***Planck***

# *Sky in Infrared*

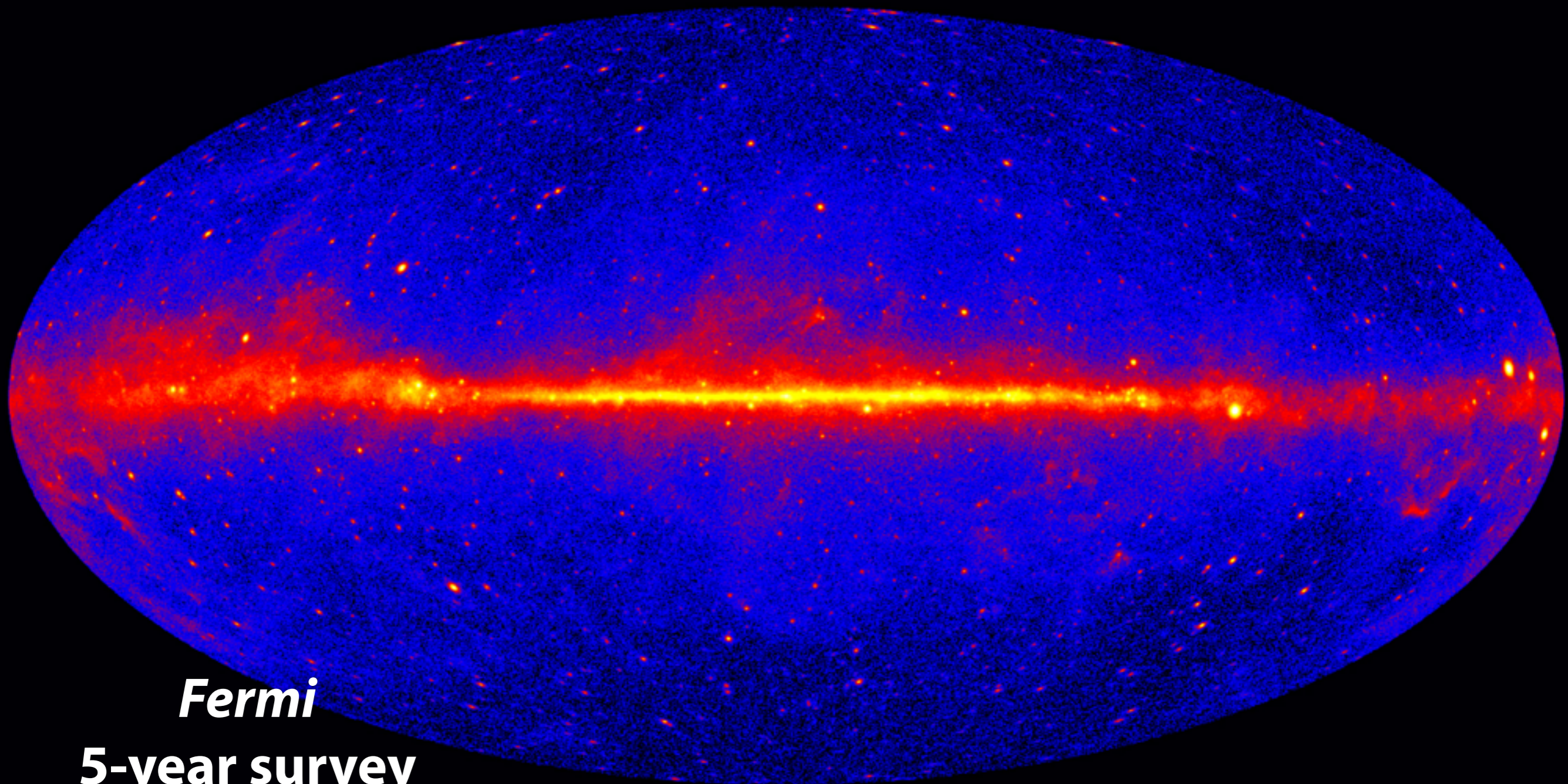


**AKARI**

# *Sky in X rays*



# *Sky in GeV Gamma rays*



*Fermi*  
**5-year survey**



# Cosmic Background Radiation Spectrum

