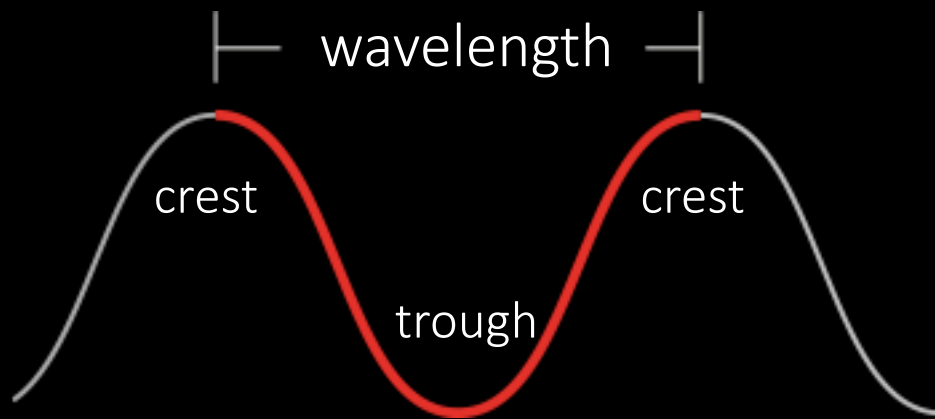
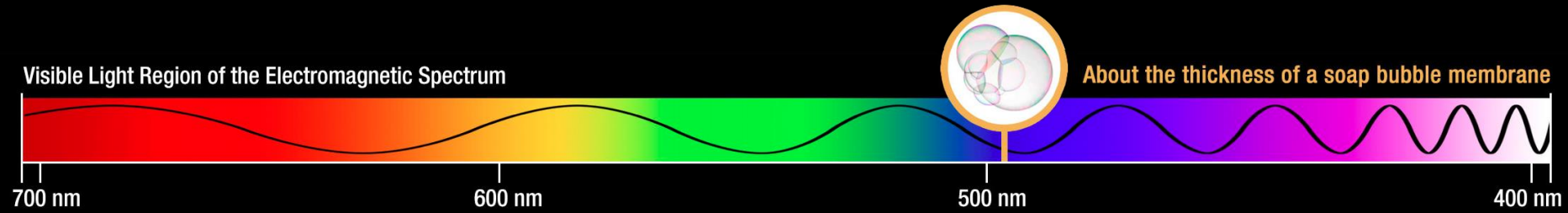


The Visible Light Spectrum

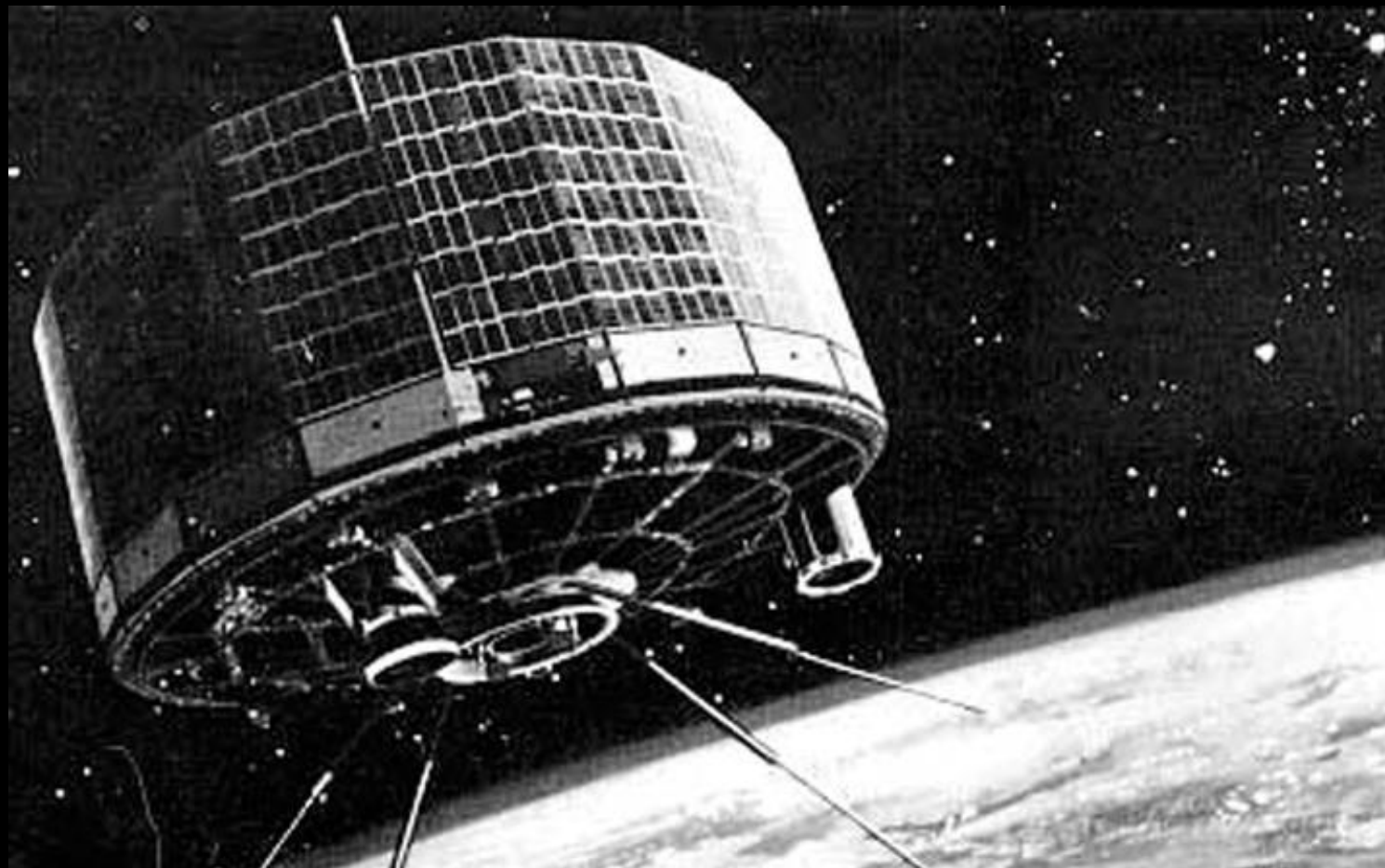


Question: What color has the shortest wavelength?

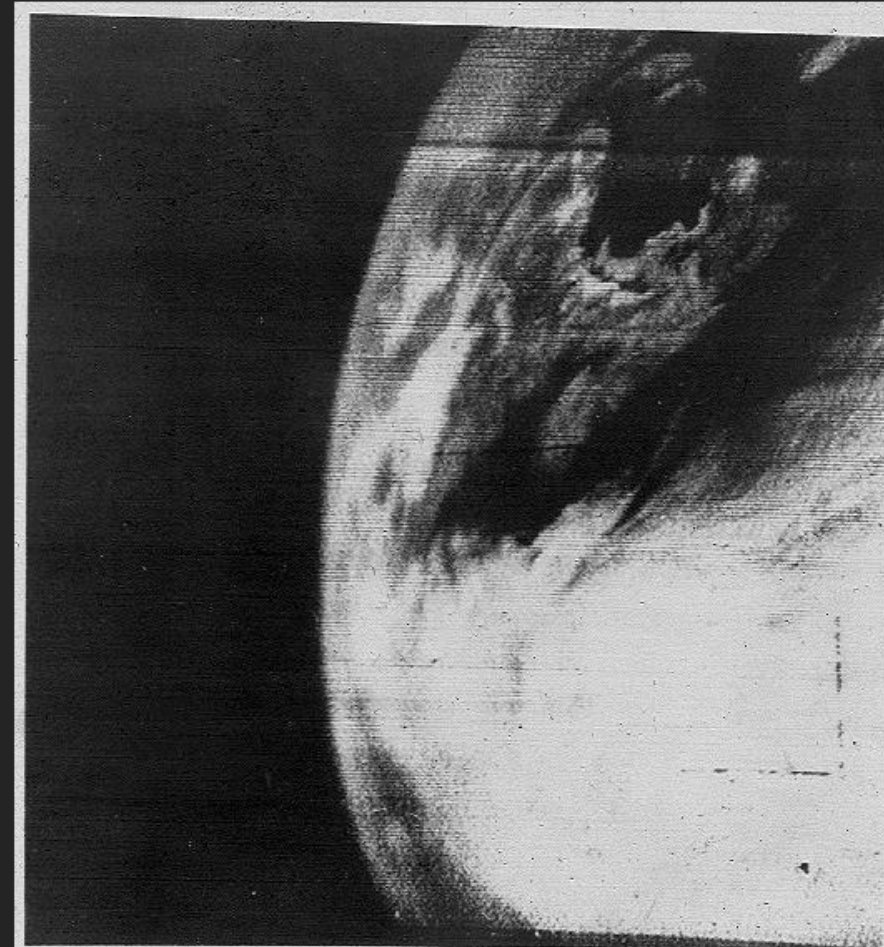
Answer: **Violet**

Shorter wavelength = more energy

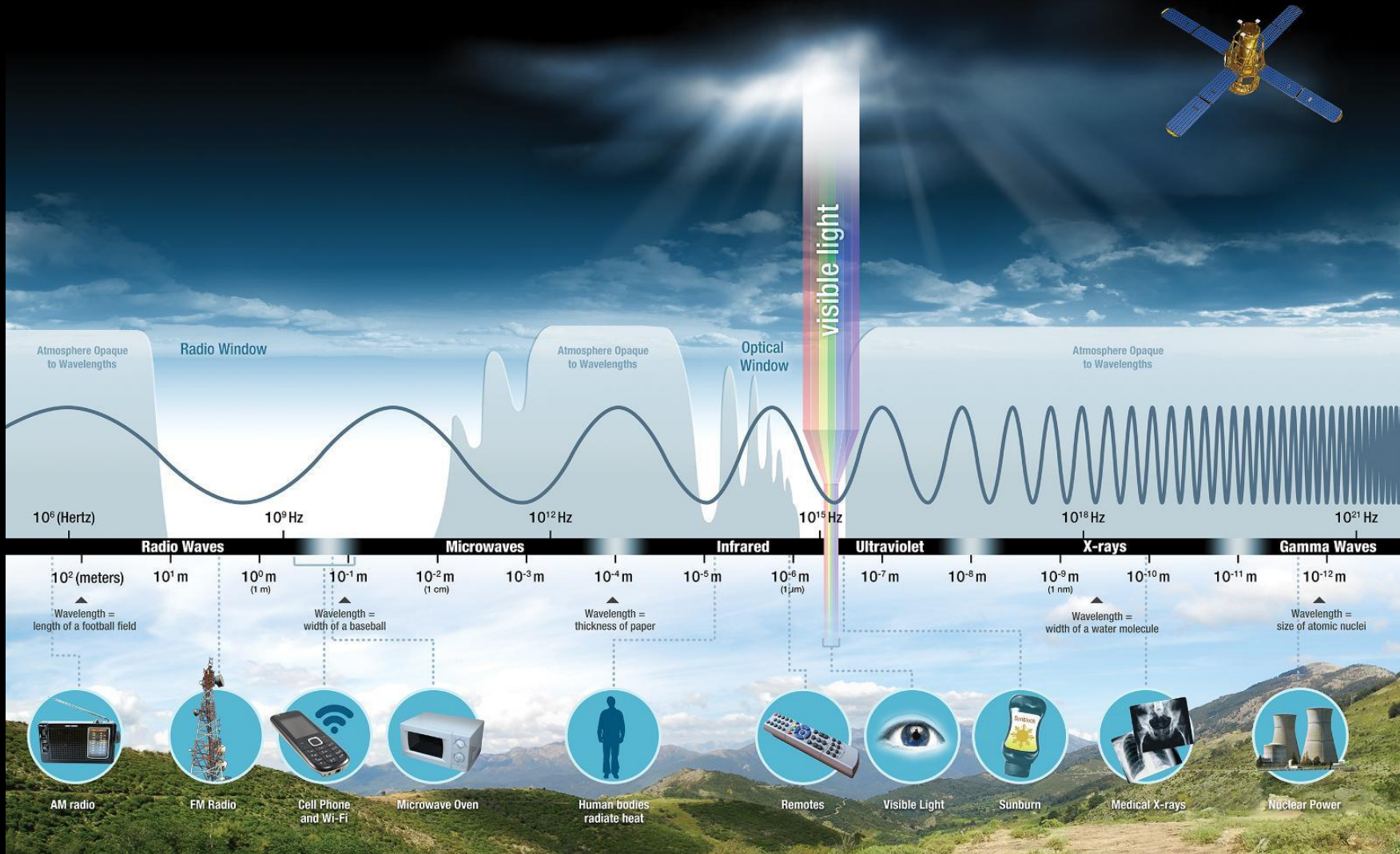
The First Weather Satellite – TIROS-1



FIRST TELEVISION PICTURE FROM SPACE
TIROS I SATELLITE APRIL 1, 1960



The Spectrum of Light



Question: What form of light is used to heat up food?

Answer: Microwaves

Question: What form of light causes sunburn?

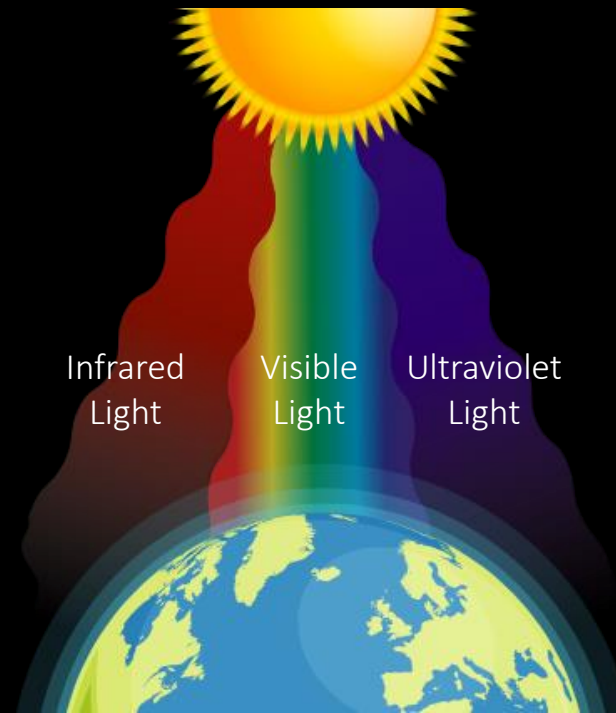
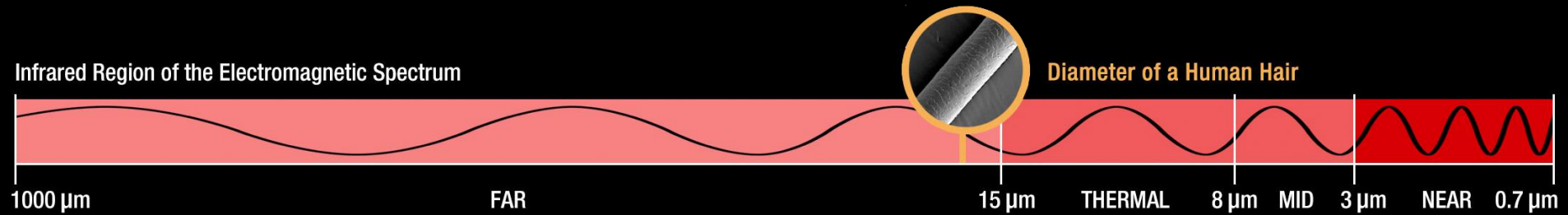
Answer: Ultraviolet

Question: What form of light is emitted during lightning strikes?

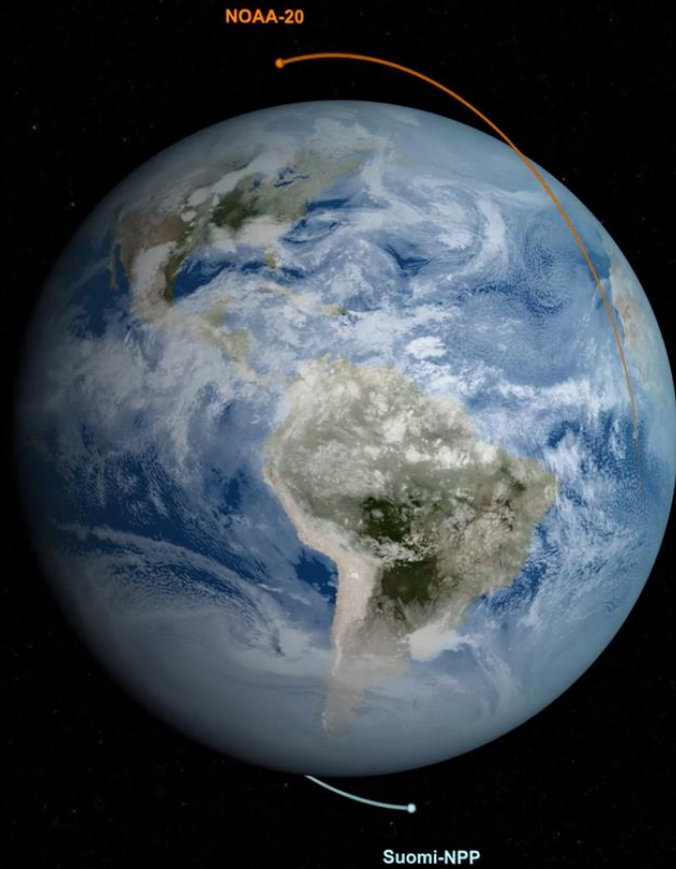
HINT: Lightning strikes have high energy.

Answer: Gamma waves

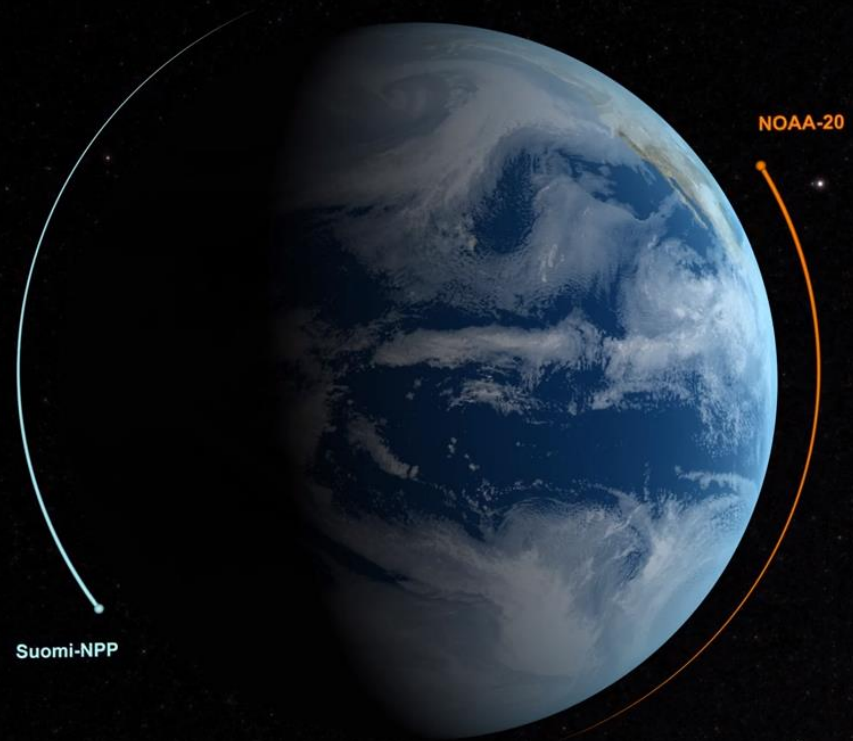
Infrared Light



Polar Orbits



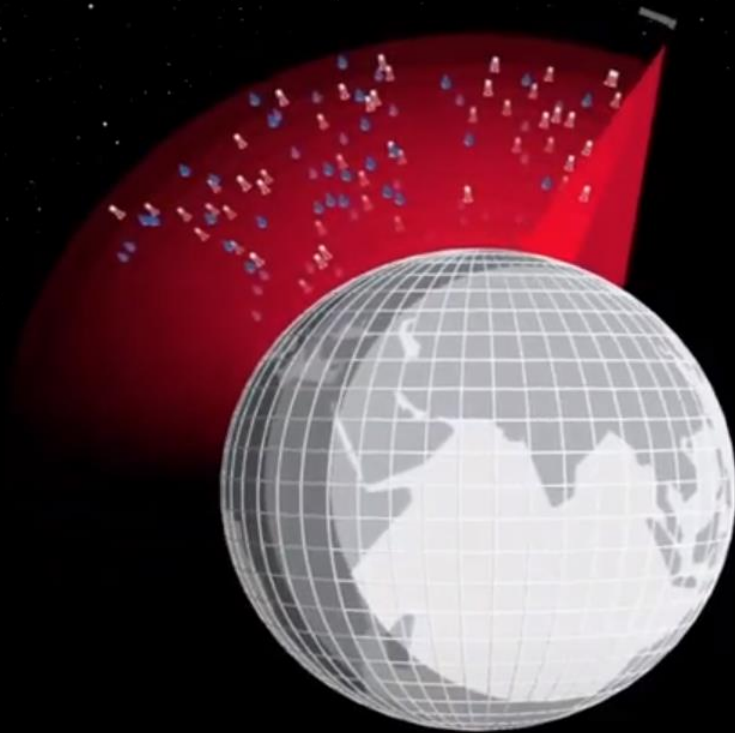
Orbiting 512 miles
above the Earth



Travelling at 17,000
miles per hour

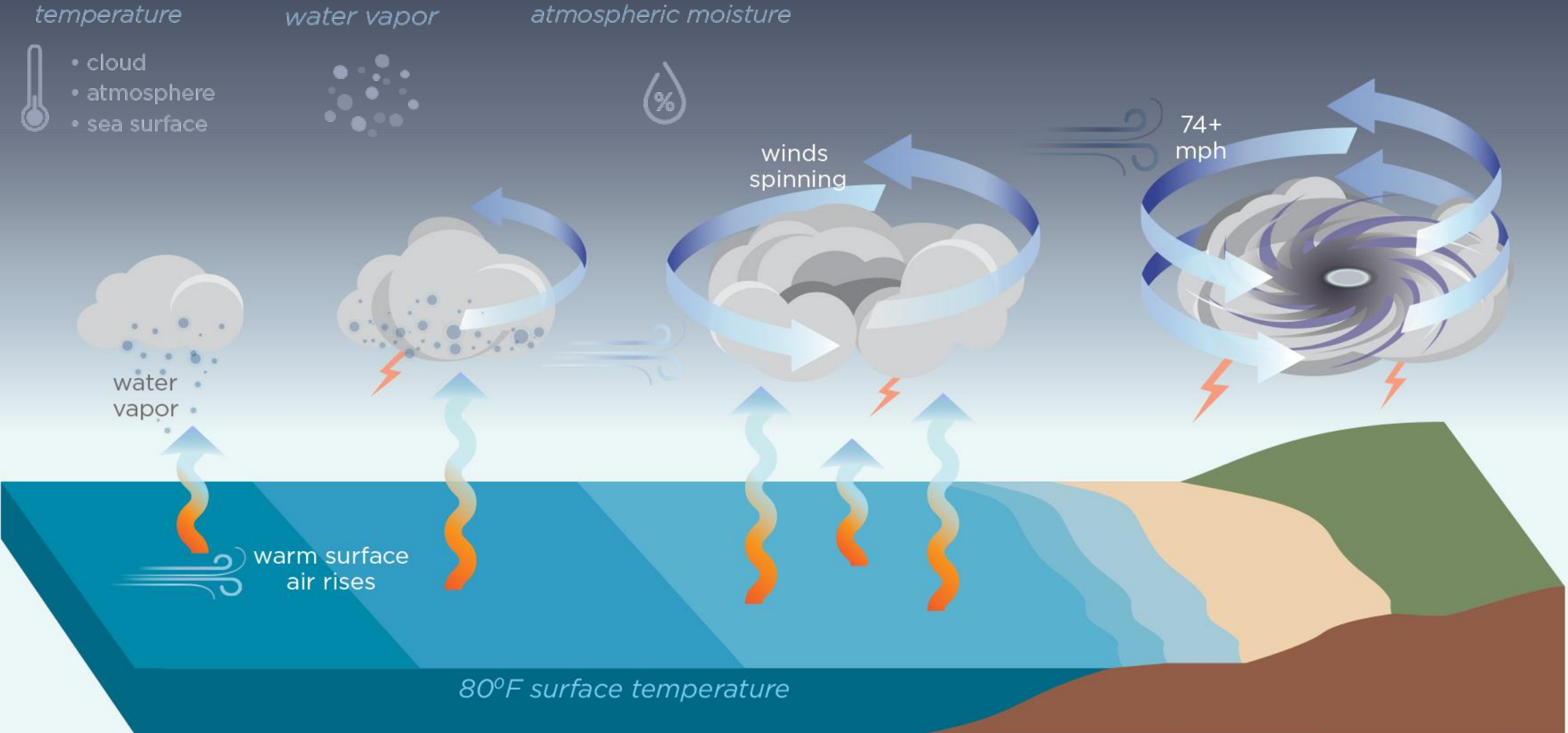
JPSS – Infrared Sensors

- Visible Infrared Imaging and Radiometer Suite (VIIRS)
- Cross-track Infrared Sounder (CrIS)



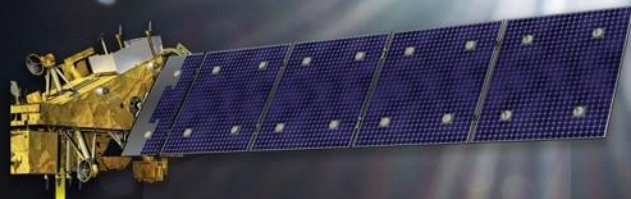
CrIS measuring temperature and water vapor in Earth's atmosphere.

Forecasting a Hurricane





JPSS System



ATMS

(Advanced Technology Microwave Sounder)

Observations Include:

- Liquid water in clouds
- Rainfall rate
- Sea ice concentration
- Snow cover



CrIS

(Cross-track Infrared Sounder)

Observations include:

- Atmospheric temperature
- Atmospheric moisture



VIIRS

(Visible Infrared Imaging Radiometer Suite)

Observations include:

- Cloud cover and layers
- Cloud base height
- Cloud top temperature and height
- Snow cover
- Sea surface temperature



OMPS

(Ozone Mapping and Profiler Suite)

Observations include:

- Ozone in the atmosphere
- Other particles in the atmosphere



CERES

(Clouds and the Earth's Radiant Energy System)

Observations include:

- Role of clouds in the amount of heat the planet emits



National Weather Service (NWS)

One of the most well-known users of data from the JPSS fleet. Uses supercomputers (shown) that process data to create weather forecasts.



85%

of the data for the 3-7 day forecast

APPLICATIONS



Weather Forecasts



Agriculture



Marine Forecasts



Managing Fishing



Forecasts for Flights



Emergency Response Support



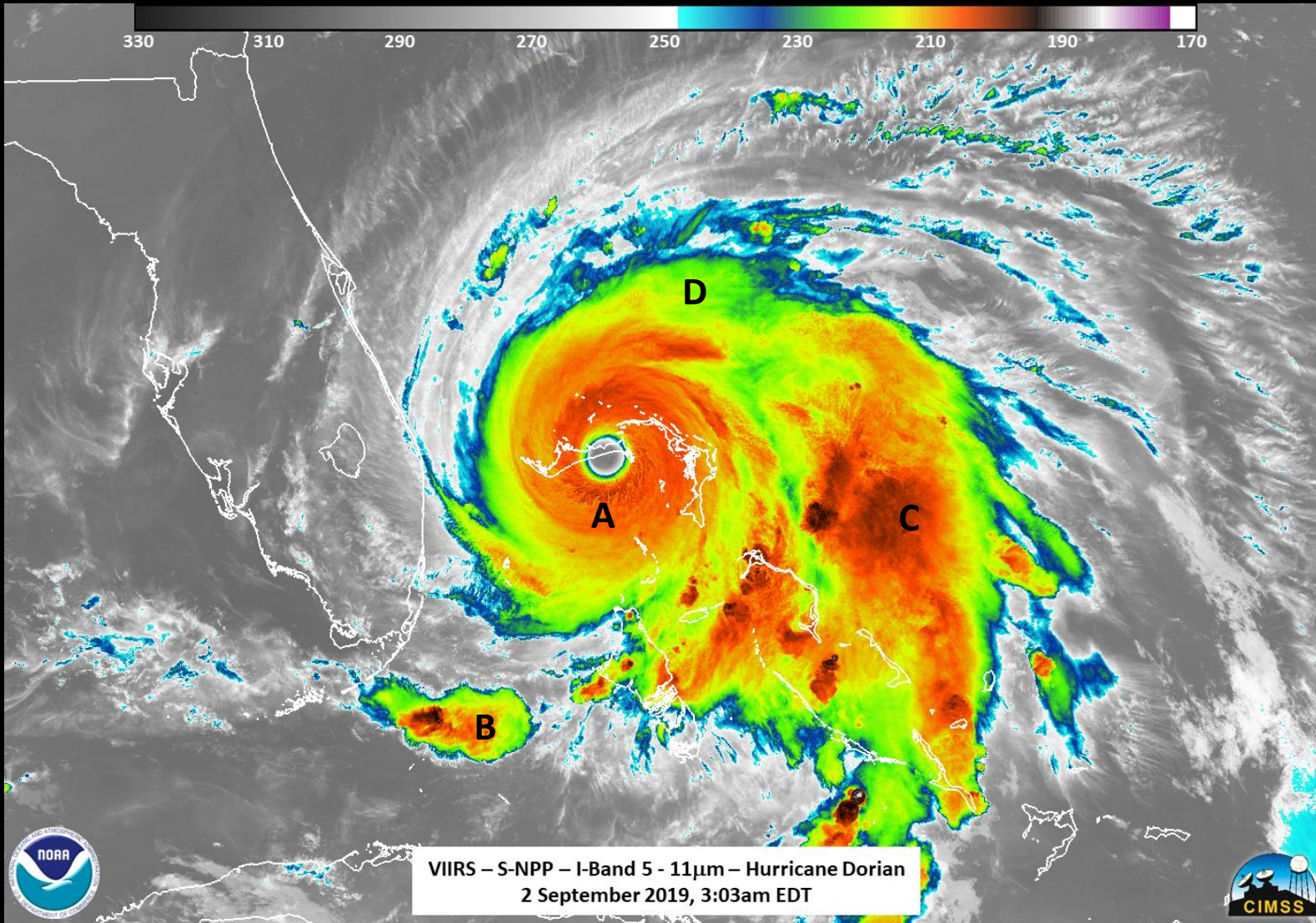
Polar Ground Station



NOAA Satellite Operations Facility (NSOF)

The home of JPSS mission operations. Data from the satellite is received here and distributed to the data users.

False Color Images



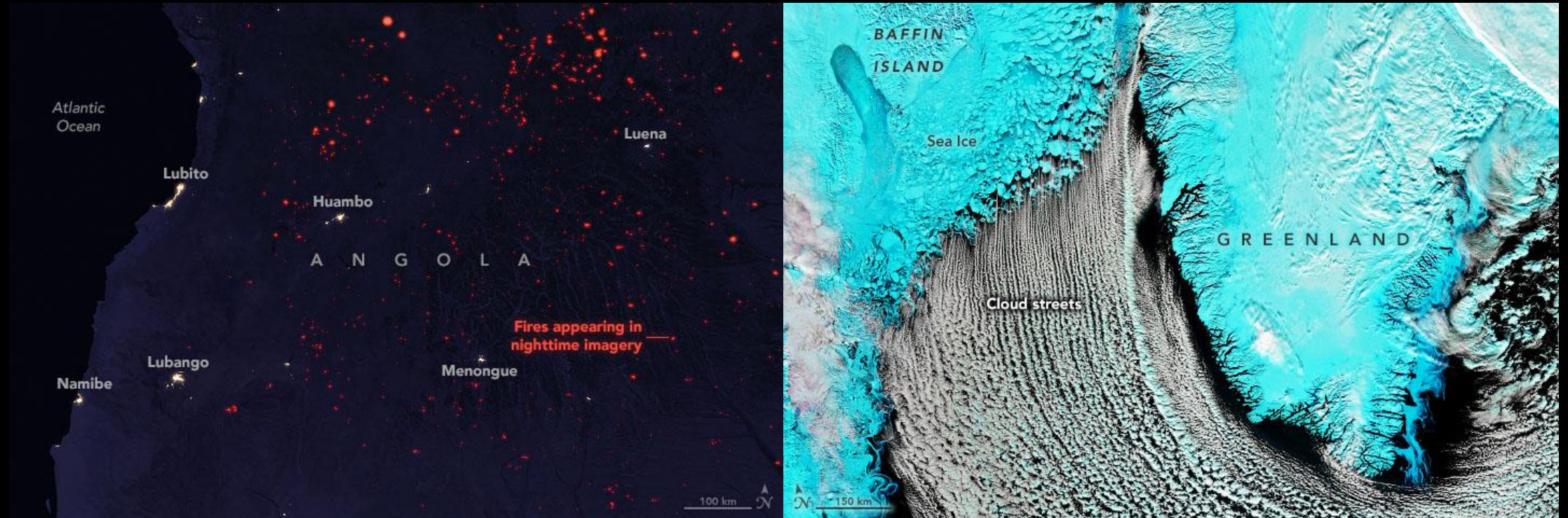
Question: Where do you think the hurricane **has the highest temperature?**

- A. The center
- B. The bottom left
- C. The middle right
- D. The top

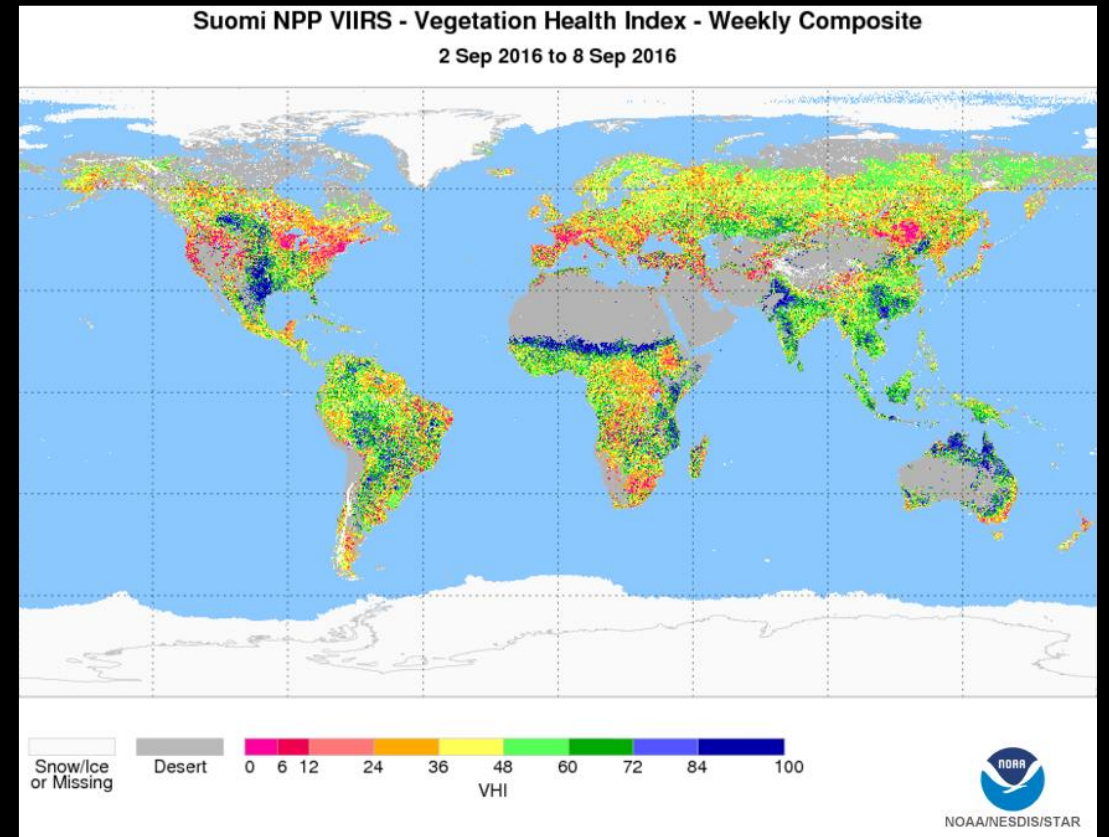
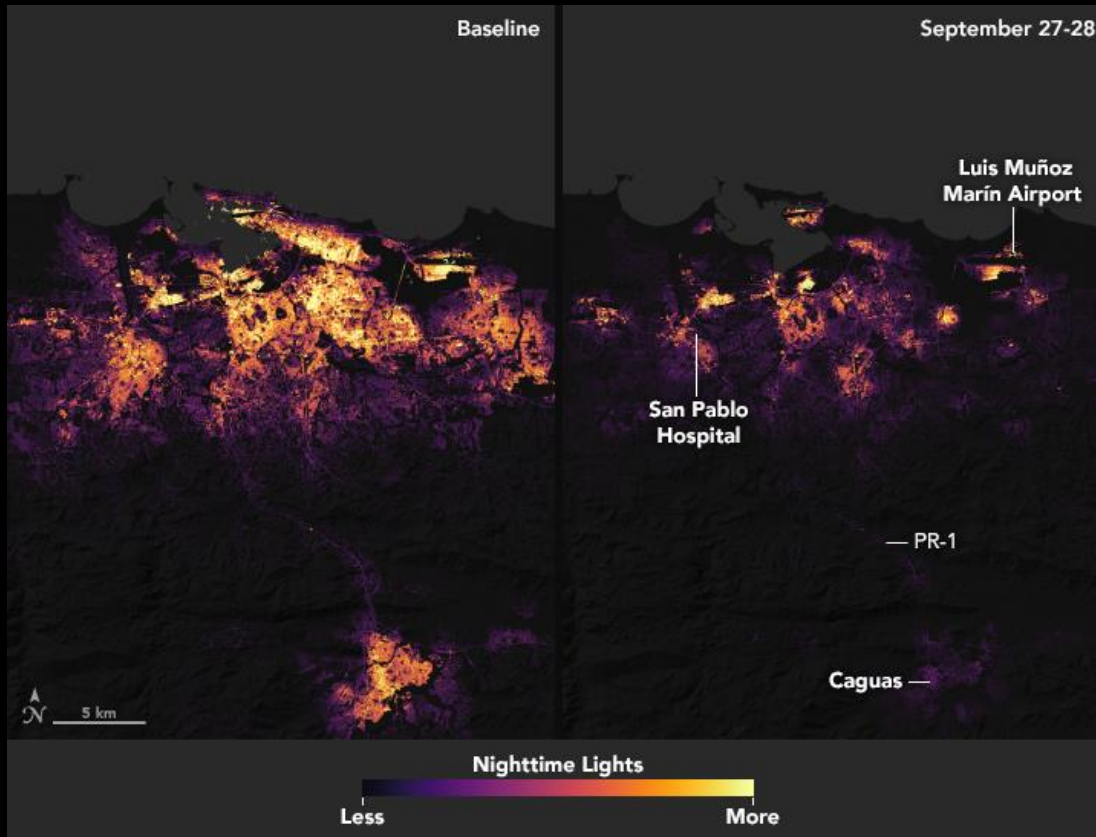
Letters are spread around the hurricane

Answer: C

Other Uses for Infrared Light



Other Uses for Infrared Light



What Other Wavelengths Does JPSS Use?

- Microwaves
- Infrared
- Visible Light
- Ultraviolet
- Radio Waves

