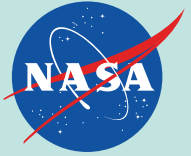


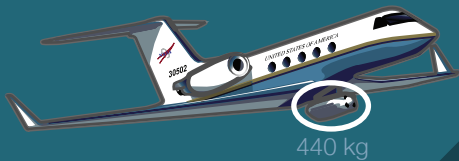
UAVSAR's L-band Instrument

National Aeronautics and
Space Administration



The Uninhabited Aerial Vehicle Synthetic Aperture Radar (UAVSAR) serves as a testbed for developing new radar technologies and algorithms for Earth science satellite missions including SMAP, NISAR, and SWOT. To learn more, visit uavsar.jpl.nasa.gov.


The radar is mounted in a pod below the C-20A




5 Subsystems


The unpressurized radar pod can be adapted to support multiple aircrafts and frequencies




 **Digital Unit** is the brain and heartbeat of the radar

 **Embedded GPS & INS (EGI)** measures the direction the antenna is pointing

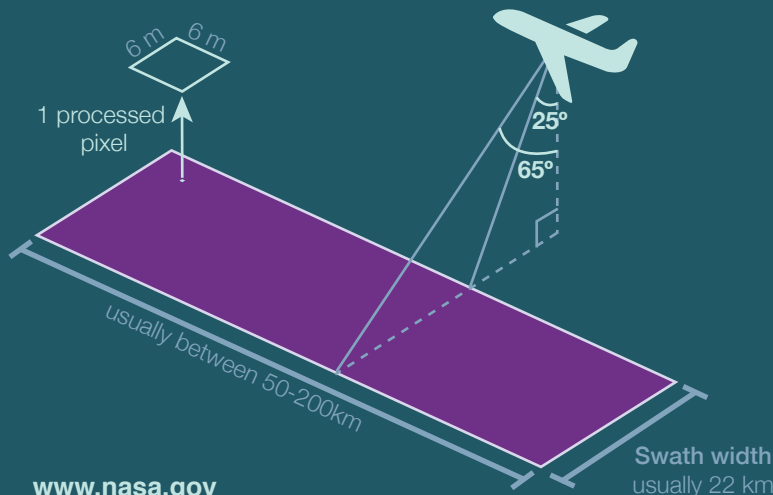
 **Power Distribution Unit (PDU)** routes power to all subsystems

 **Differential GPS (DGPS)** saves the position of the antenna, with an accuracy of 30 cm

 **Radio Frequency (RF) Unit** shifts the frequency of the signal up for transmit and down for receive

Flying the radar

Flight lines are collected to the left of the airplane, not below it



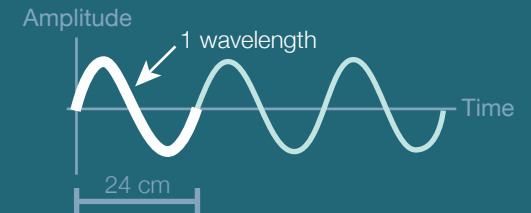
www.nasa.gov

Antenna

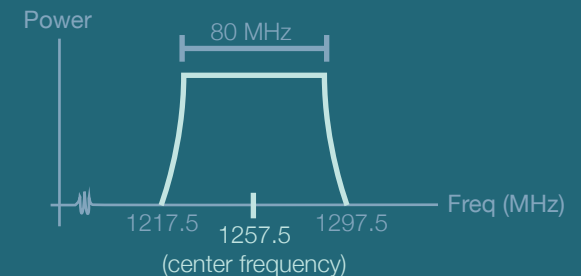
This is an active sensor: it transmits & receives radar waves



UAVSAR transmits microwaves at **L-band** (1-2 GHz) with a **power** of ~3.1 kW



The number of wavelengths transmitted per second is the **frequency**, measured in 1,000,000 wavelengths/second (MHz).



UAVSAR's frequency spans a **bandwidth** of 80MHz. Larger bandwidth provides better resolution.