



DIRECT READOUT PROGRAM ROADMAP

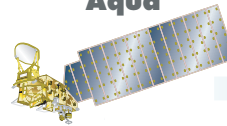
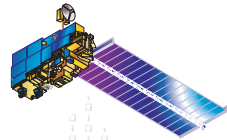
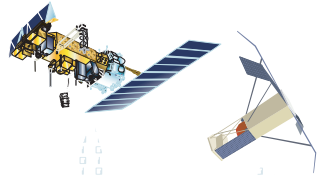
POES • DMSP • SeaStar

Terra

Aqua

NPP • NPOESS

FUTURE MISSIONS



AVHRR

SeaWiFS

OLS

HIRS

SSM/I, SSMIS,
SSM/T, SSM/T-2

MODIS

MODIS

AIRS

AMSU

HSB

AMSR-E

VIIRS

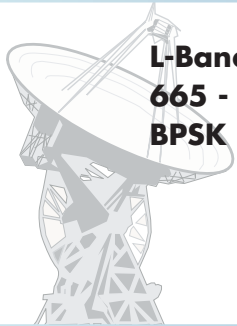
CrIS

ATMS

OMPS

CMIS
(NPOESS Only)

Spacecraft and Instrument Evolution



L-Band, S-Band
665 - 2 Mbps
BPSK



X-Band
13.1 Mbps
Convolutional
UQPSK
NRZ-M



X-Band
15 Mbps
OQPSK
NRZ-M



X-Band • X-Band, L-Band
15 Mbps • 20, 3.8 Mbps
Convolutional
QPSK • OQPSK
NRZ-M
Compression

Standardization and Increasing RF, Modulation, and Bandwidth Requirements

■ Custom Formatters and Ingest Software

■ Analog Custom Receivers

■ NOAA Level B (AVHRR)

■ Limited Data Distribution Mechanisms

■ Spacecraft Specific STPS

■ Level-0

■ Return Link Processor

■ Analog Configurable Receivers

■ MODIS Level-1

■ MODIS Simulcast

■ Reconfigurable RT-STPS

■ Return Link Processor

■ Digital Configurable Receivers

■ MODIS and AIRS Level-1

■ NEpster with Level-0 and Level-1 Data

■ MODIS Simulcast

■ User Reconfigurable RT-STPS

■ Multi-Mission Digital Receiver

■ Instrument SDR Software and Select EDR Algorithms

■ NEpster with RDR, SDR, and EDR Data Products

■ Simulcast of Select Instruments

■ Multi-Mission Scheduler and Controller

■ Science Processing Algorithm Wrapper

■ Real-time Data Management and Processing Tools

■ HDF to GIS Data Transport Tools

Evolution of Concurrent Ground Systems Supporting Technologies and Algorithm Development



DIRECT READOUT
directreadout.gsfc.nasa.gov