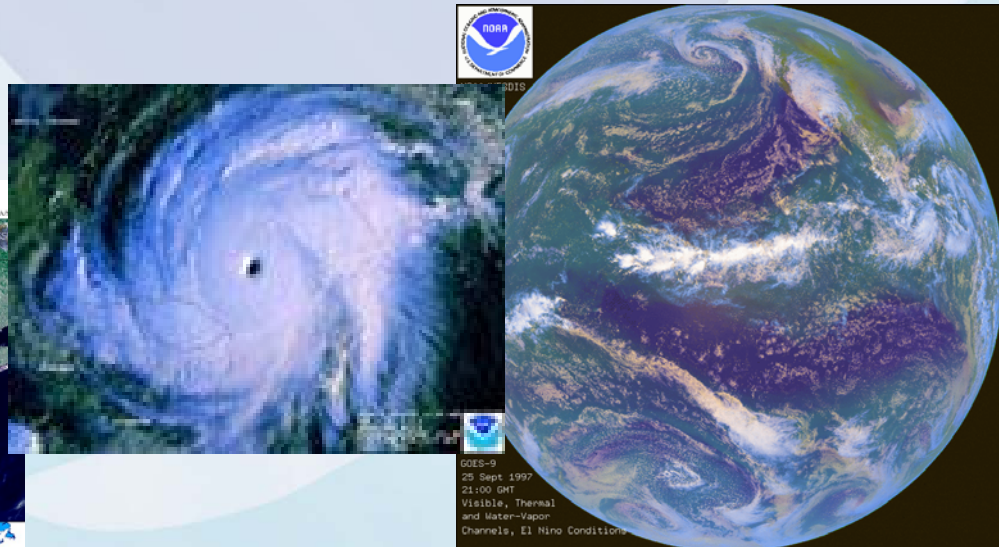
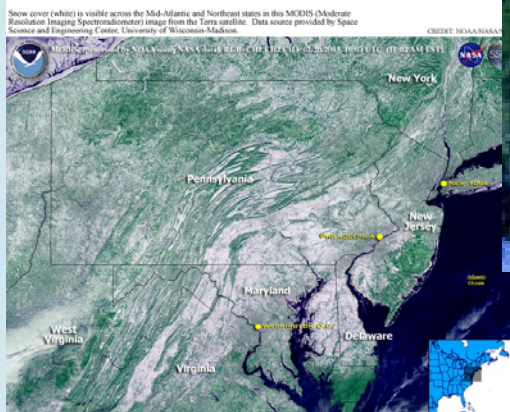


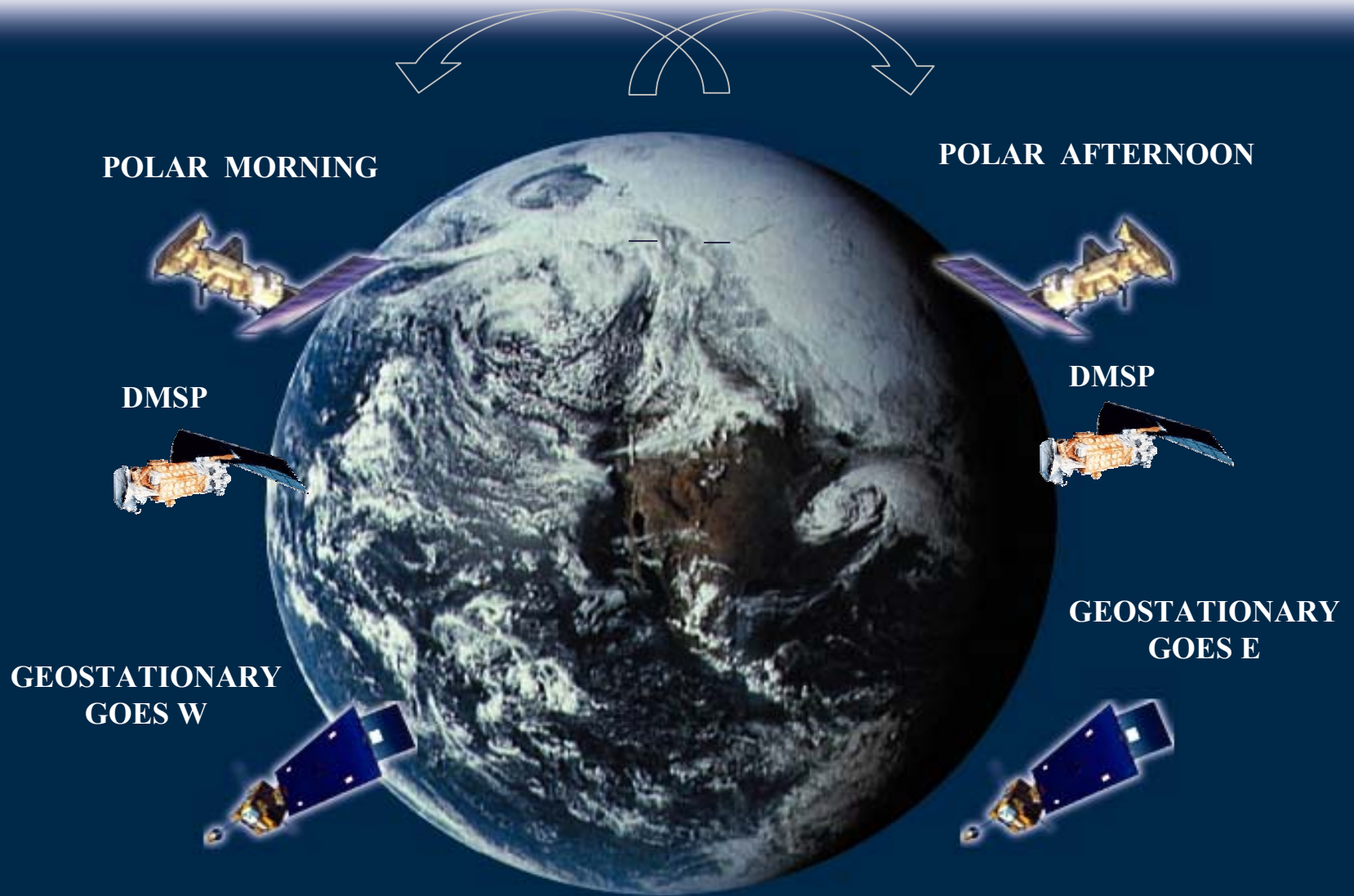
NOAA Polar Data Processing Timelines



Gene Legg
November 12, 2003



NOAA Satellite Data Acquisition



Ingesting Data from 21 Satellites

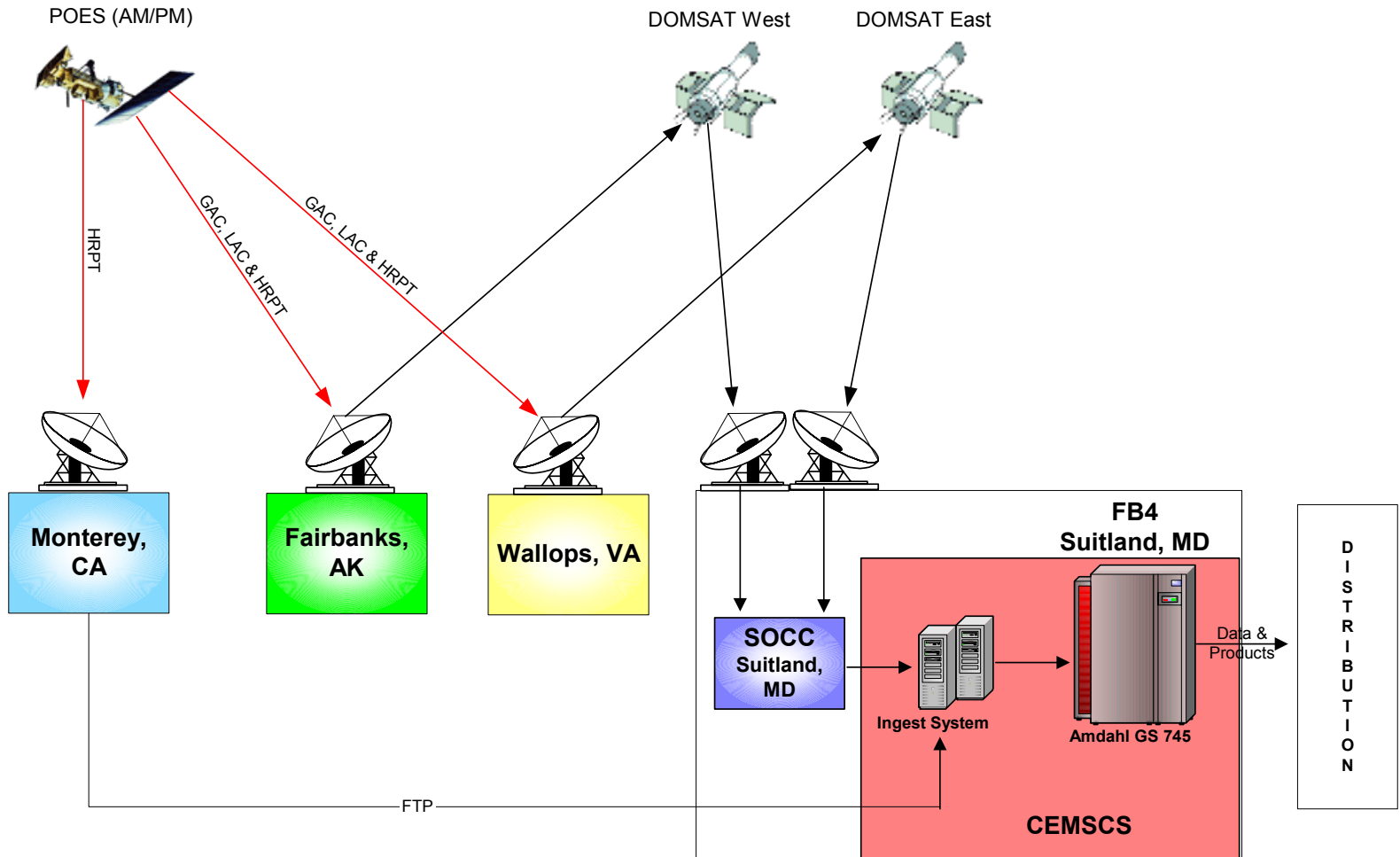
CEMSCS Daily Satellite Data Received

- ✓ NOAA Polar
 - NOAA-15, 16 & 17 6.3GB
- ✓ GOES
 - GOES East/West 35.0GB
- ✓ DMSP
 - F13, 14 & 15 1.7GB
- ✓ Non-NOAA Satellites
 - METEOSAT 5 (INDOEX) .4GB
 - TRMM 1.3GB
 - MODIS 175.0GB
 - AIRS .6GB
 - ERS 2 .2GB
 - QuikSCAT .4GB
 - GMS .1GB
 - METEOSAT 7 .8GB
 - RadarSat 5.0GB
 - Seawifs (not included in total, must be ordered)

232.2 GB

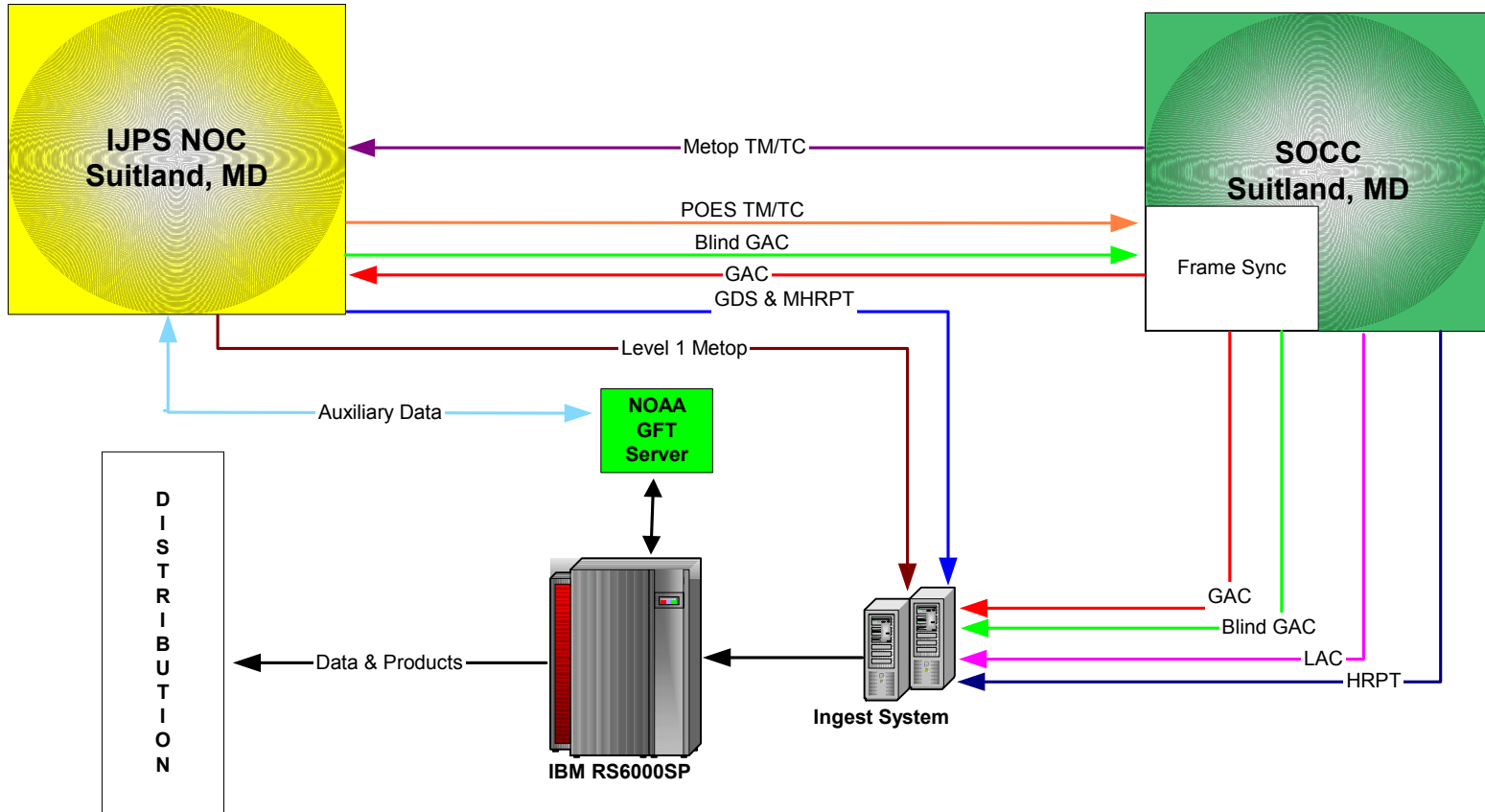


CEMSCS NOAA POLAR-ORBITING OPERATIONAL ENVIRONMENTAL SATELLITE SYSTEM DATA FLOW

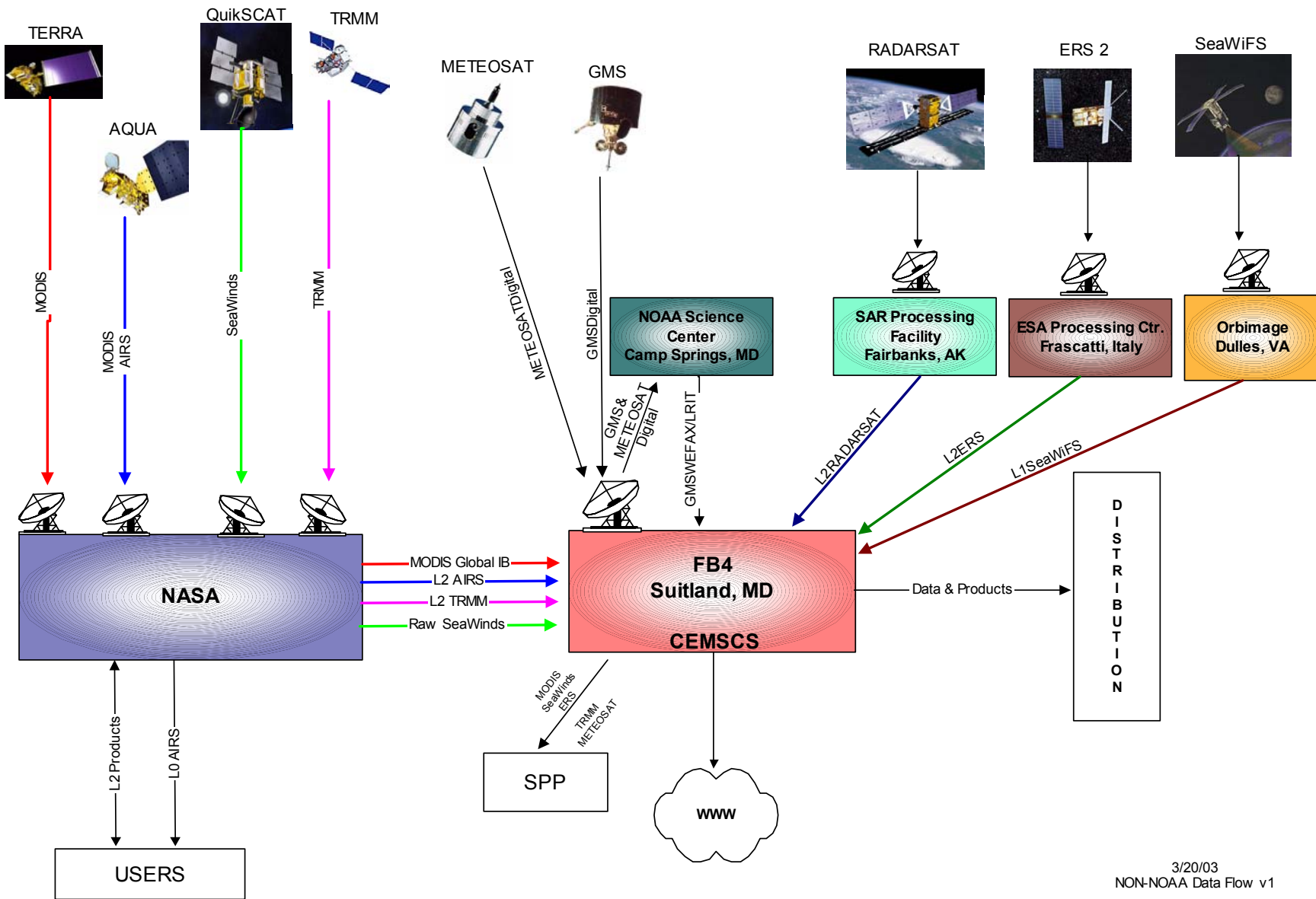


CEMSCS

INITIAL JOINT POLAR-ORBITING OPERATIONAL SATELLITE SYSTEM DATA FLOW

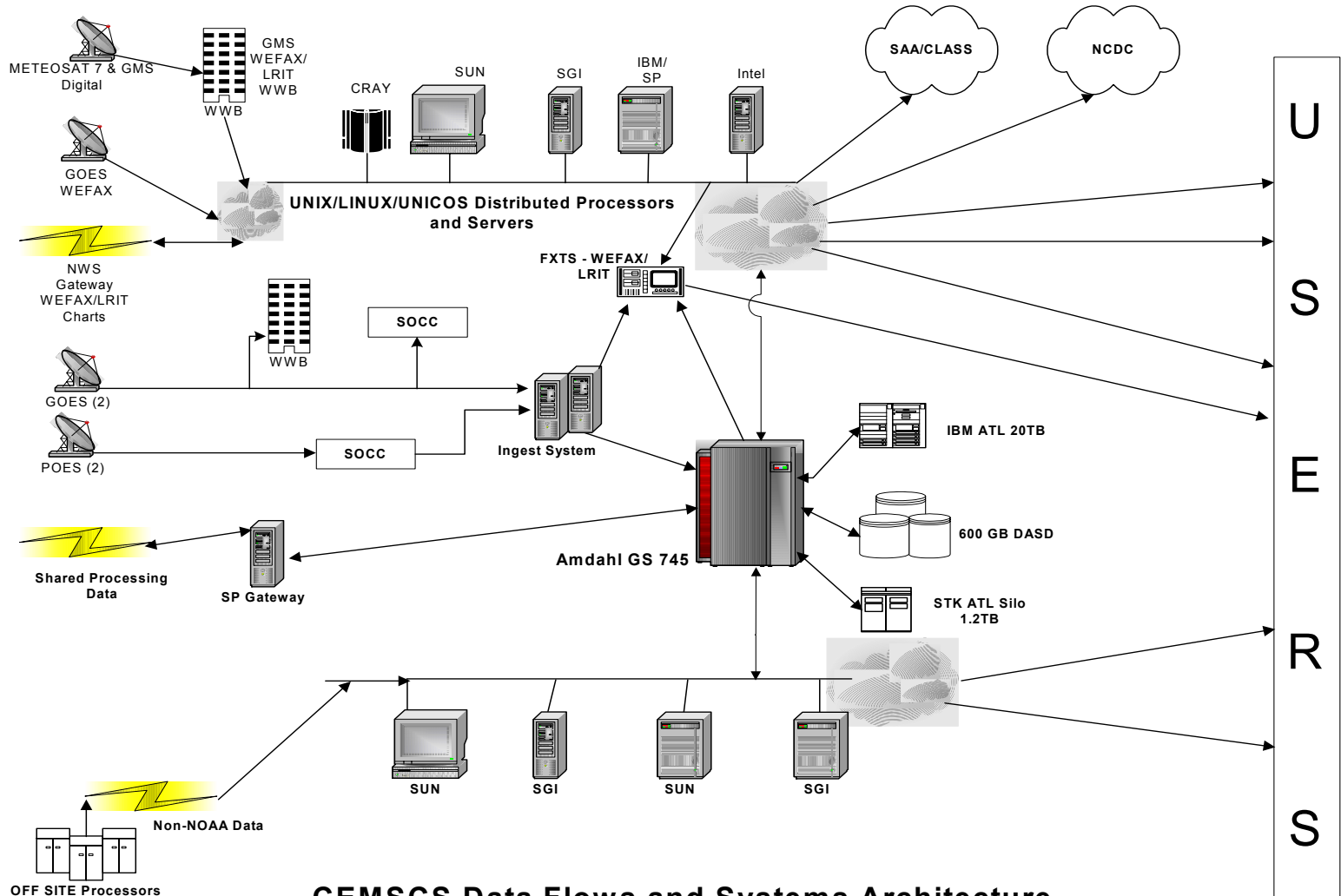


CEMSCS NON-NOAA DATA FLOW



CEMSCS Architecture

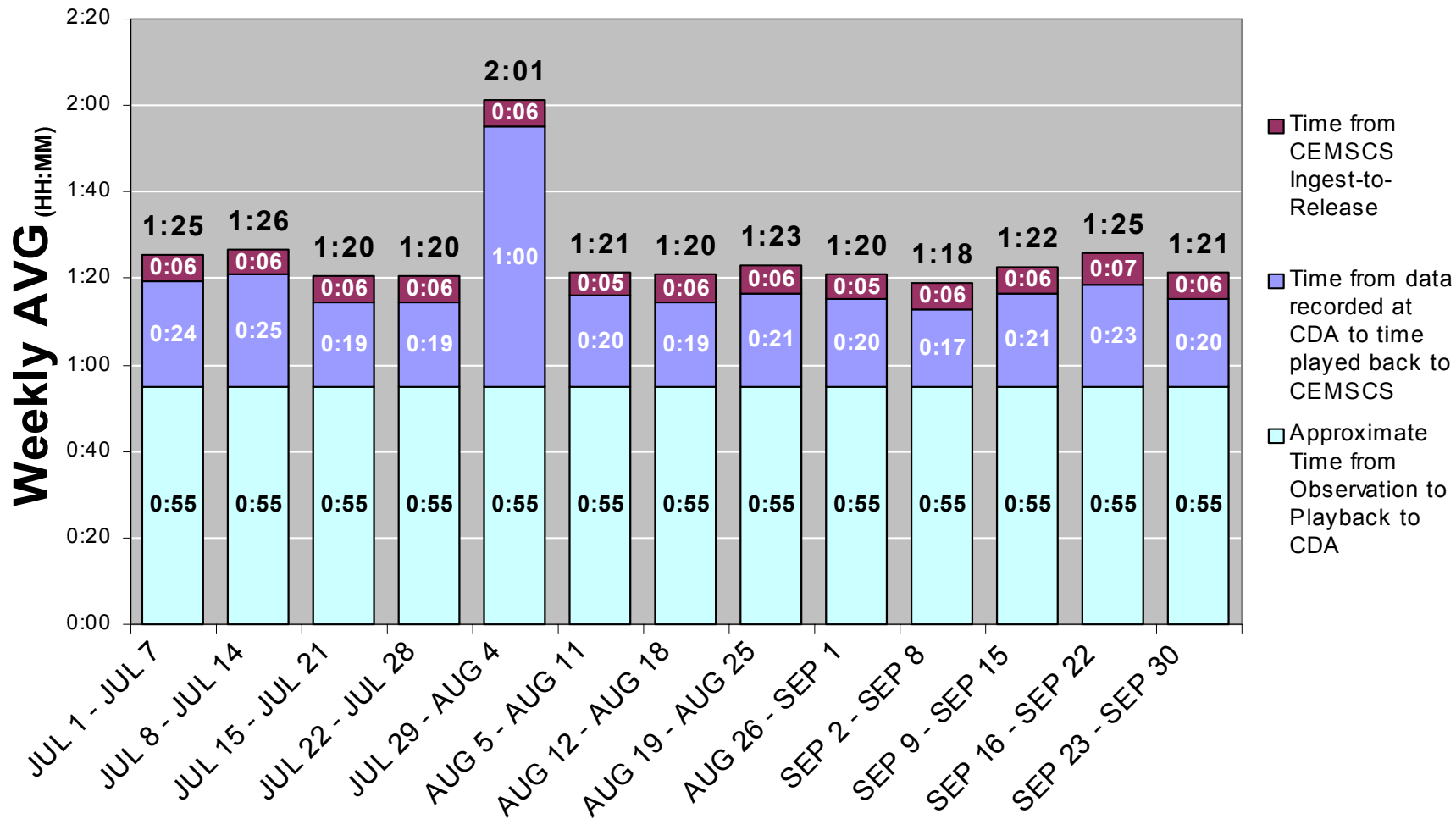
2003



CEMSCS Data Flows and Systems Architecture



OSO/OSDPD POES Data Delivery – Primary S/C

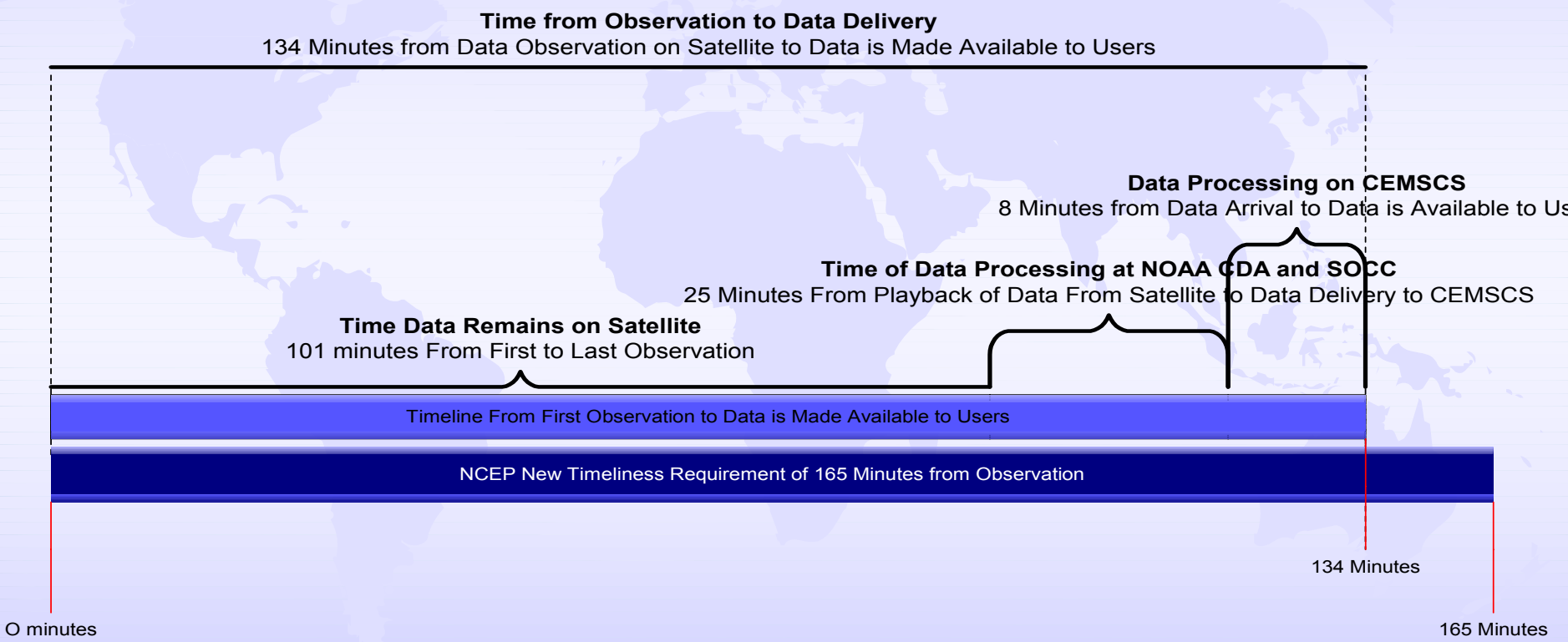


NCEP 00Z Cycle Stats

Instrument	Eta - 00Z (T+1:10)	GFS - 00Z (T+2:45)	FNL - 00Z (T+6:05)
HIRS-2 (NOAA-14)	703 (14, 0)	47,826 (1, 1)	172,099 (0, 1)
MSU (NOAA-14)	38 (0, 0)	2,550 (1, 1)	9,182 (0, 1)
AMSU-A (N-15,16,17)	13,243 (1, 5)	155,673 (1, 0)	214,039 (0, 0)
AMSU-B (N-15,16,17)	118,373 (1, 5)	1,399,827 (1, 0)	1,910,940 (0, 0)
HIRS-3 (N-15,16,17)	28,885 (1, 6)	341,611 (1, 0)	468,037 (0, 0)

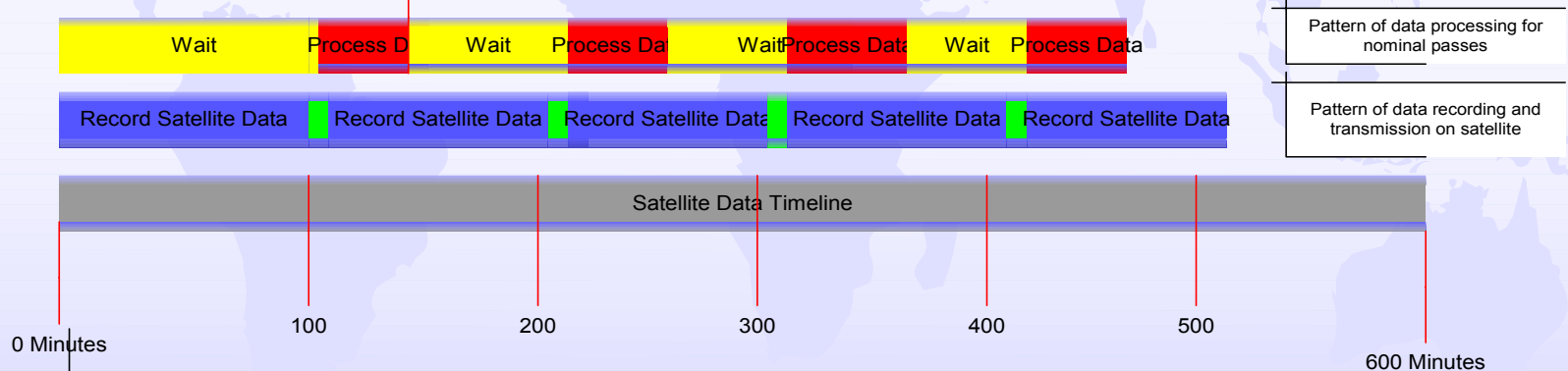


Timeline for Current Processing of NOAA Polar Data



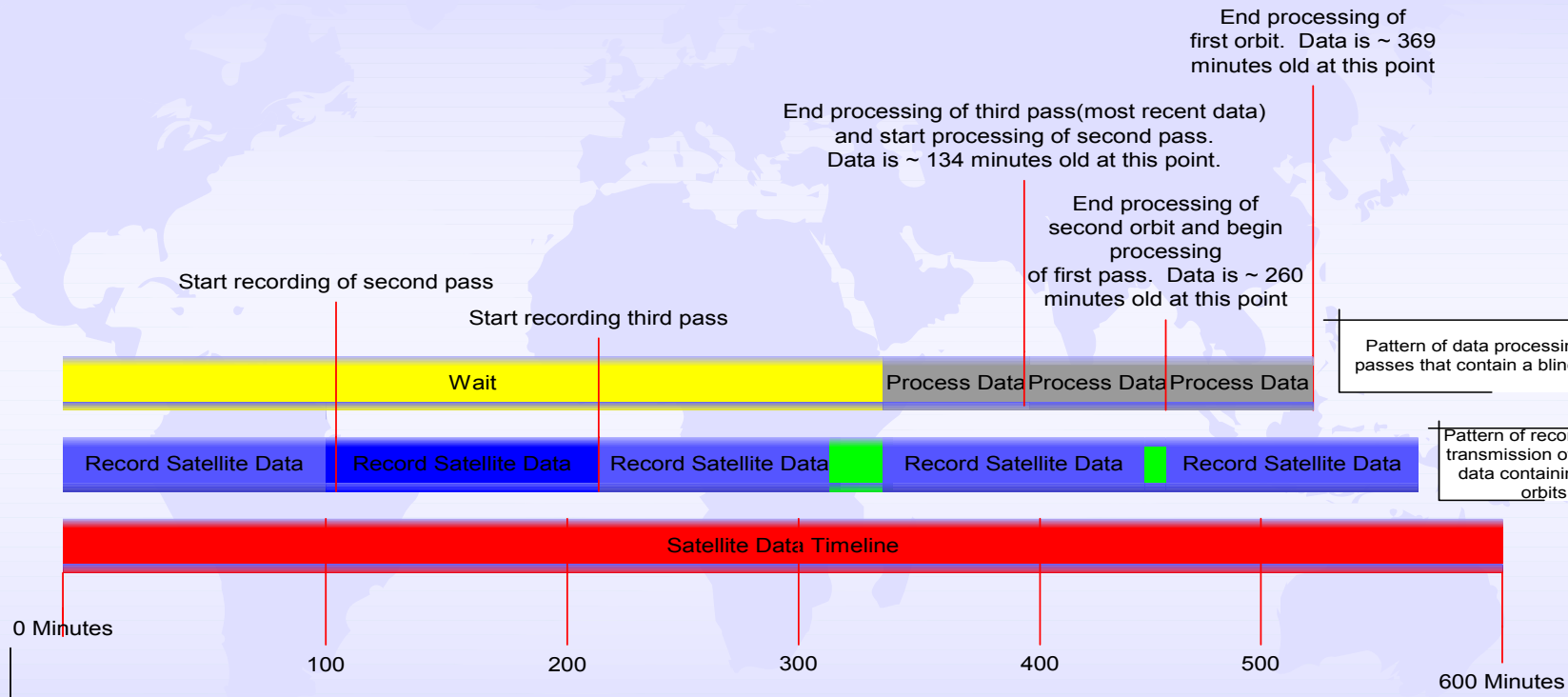
Timeline for Current Polar Processing of Nominal Passes

Oldest output data at this point is ~134 minutes old and approximately the same for other passes using this scheme



- Red=Process** Red=Time required to process data at CEMSCS (Center Environmental Meteorological Satellite Computer System)
- Blue=Record** Blue=Time required to record data aboard satellite
- Yellow=Process** Yellow=Time CEMSCS spend waiting for data
- Green=Transfer** Green=Time Spend to downlink and transfer data to CEMSCS
- Gray=Timeline** Gray=Satellite data timeline

Timeline for Current Polar Processing of Blind Orbits



Pattern of data processing for passes that contain a blind orbits

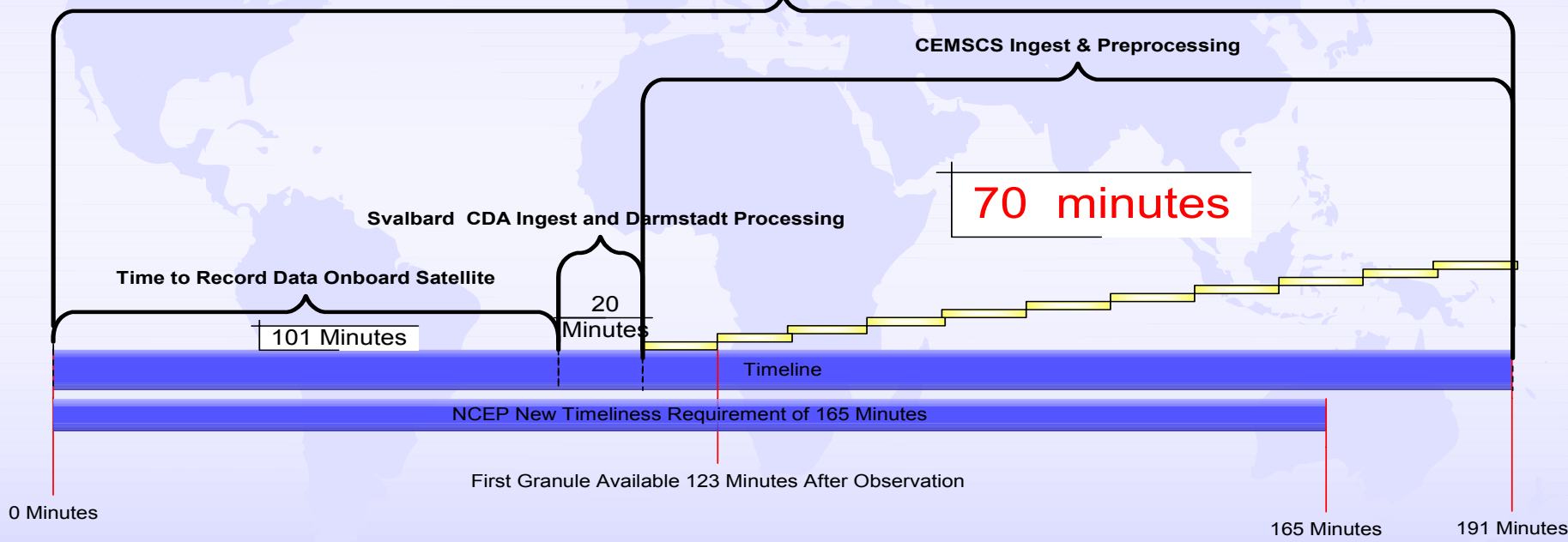
Pattern of recording and transmission of satellite data containing blind orbits

- Gray=Process** Gray=Time required to process data at CEMSCS (Center Environmental Meteorological Satellite Computer System)
- Blue=Record** Blue=Time required to record data aboard satellite
- Yellow=Wait** Yellow=Time spend waiting for data to process
- Green=Transfer** Green=Time spend to downlink and transfer data to CEMSCS
- Red=Timeline** Red= Satellite data timeline



Timeline for Pipeline Processing of METOP & NOAA BLIND ORBITS

191 Minutes from First Observation Until Orbital File is Available



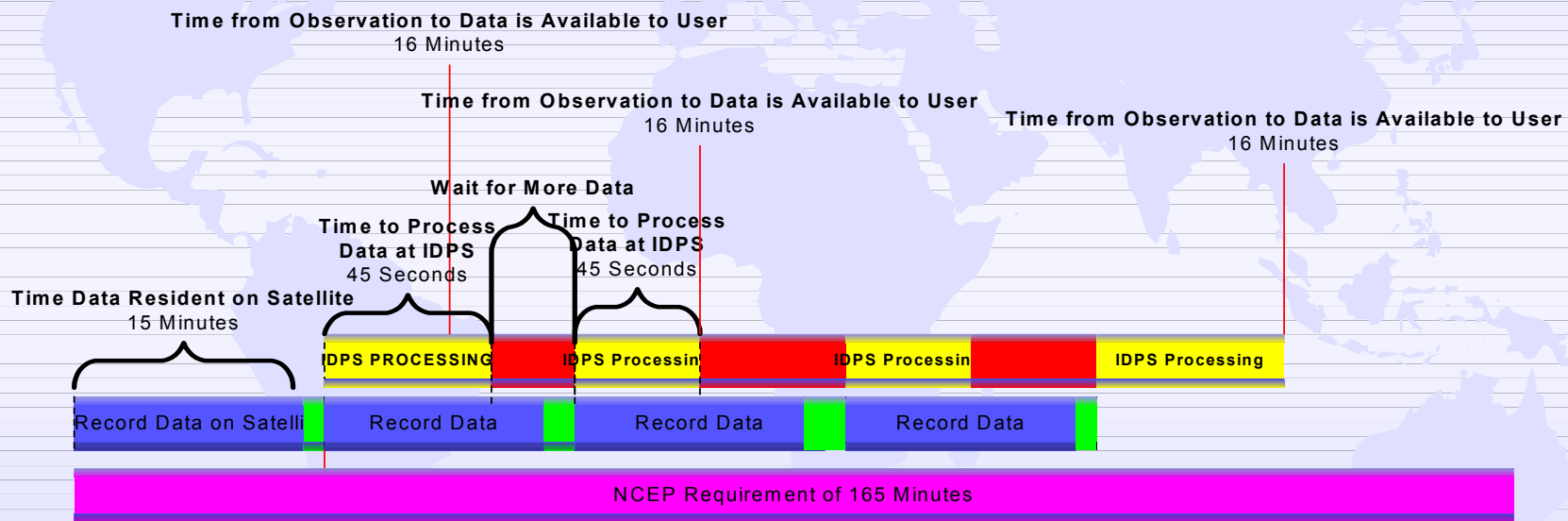
To Be Noted
The first granule will be available 123 minutes after observation. The data age of all granules will be approximately 123 minutes. However, orbital file won't be available until ~ 191 minutes after the first observation which will be ~57 minutes later than they are today.

Timeline for NPP Orbital Process in NPP Era

Time from Observation to Data Delivery
108 Minutes from Data Observation on Satellite to Data is Made Available to Users



Timeline for NPOESS Processing in NPOESS Era



18 Seconds for Transfer of Data

- Red=Wait
- Blue=Record
- Yellow=Process
- Green=Transfer

Red=Time IDPS system spends waiting for data

Blue=Time required to record data aboard satellite

Yellow=Time required to process data at IDPS (Interface Data Processor Segment)

Green=Time Spend to downlink and transfer data to IDPS

165 Minutes



Questions



Backup Slides



NCEP 06Z Cycle Stats

Instrument	Eta - 06Z (T+0:50)	GFS - 06Z (T+2:45)	FNL - 06Z (T+5:50)
HIRS-2 (NOAA-14)	944 (22, 0)	31,503 (1, 7)	52,643 (1, 7)
MSU (NOAA-14)	52 (22, 0)	1,680 (1, 7)	2,808 (1, 7)
AMSU-A (N-15,16,17)	4,417 (1,10)	146,763 (0, 1)	191,615 (0, 0)
AMSU-B (N-15,16,17)	39,826 (1, 9)	1,312,402 (0, 1)	1,711,586 (0,-0)
HIRS-3 (N-15,16,17)	10,599 (0,14)	319,707 (0, 1)	417,200 (0, 0)



NCEP 12Z Cycle Stats

Instrument	Eta - 12Z (T+1:10)	GFS - 12Z (T+2:45)	FNL - 12Z (T+8:05)
HIRS-2 (NOAA-14)	4,155 (4, 0)	78,569 (1, 0)	167,793 (0, 1)
MSU (NOAA-14)	223 (4, 0)	4,185 (1, 0)	8,946 (0, 1)
AMSU-A (N-15,16,17)	5,759 (0,11)	123,864 (0, 1)	241,759 (0, 0)
AMSU-B (N-15,16,17)	50,737 (0,11)	1,114,988 (0, 1)	2,162,062 (0, 0)
HIRS-3 (N-15,16,17)	12,449 (0,11)	271,980 (0, 1)	530,220 (0. 0)



NCEP 18Z Cycle Stats

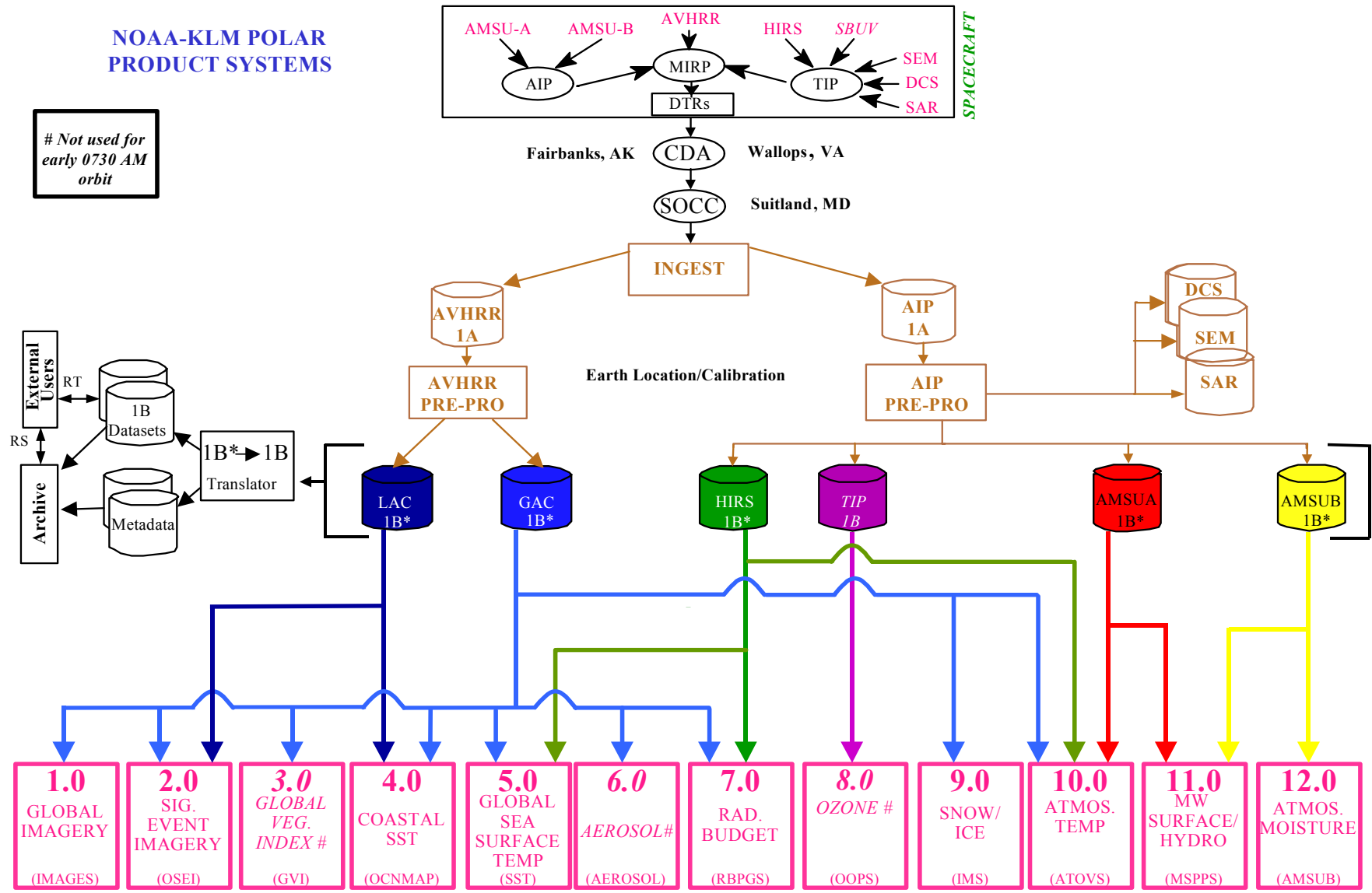
Instrument	Eta - 18Z (T+0:50)	GFS - 18Z (T+2:45)	FNL - 18Z (T+5:50)
HIRS-2 (NOAA-14)	2,898 (9, ?)	60,596 (2, 2)	145,332 (0, 5)
MSU (NOAA-14)	156 (9, ?)	3,232 (2, 2)	7,857 (0, 5)
AMSU-A (N-15,16,17)	5,753 (0, 9)	145,962 (0, 0)	220,484 (0, 0)
AMSU-B (N-15,16,17)	46,896 (0, 5)	1,306,063 (0, 0)	1,968,047 (0, 0)
HIRS-3 (N-15,16,17)	13,020 (0, 9)	320,175 (0, 0)	482,515 (0, 0)



Data Logical Product Generation NOAA-KLM

NOAA-KLM POLAR PRODUCT SYSTEMS

Not used for
early 0730 AM
orbit



SPACECRAFT

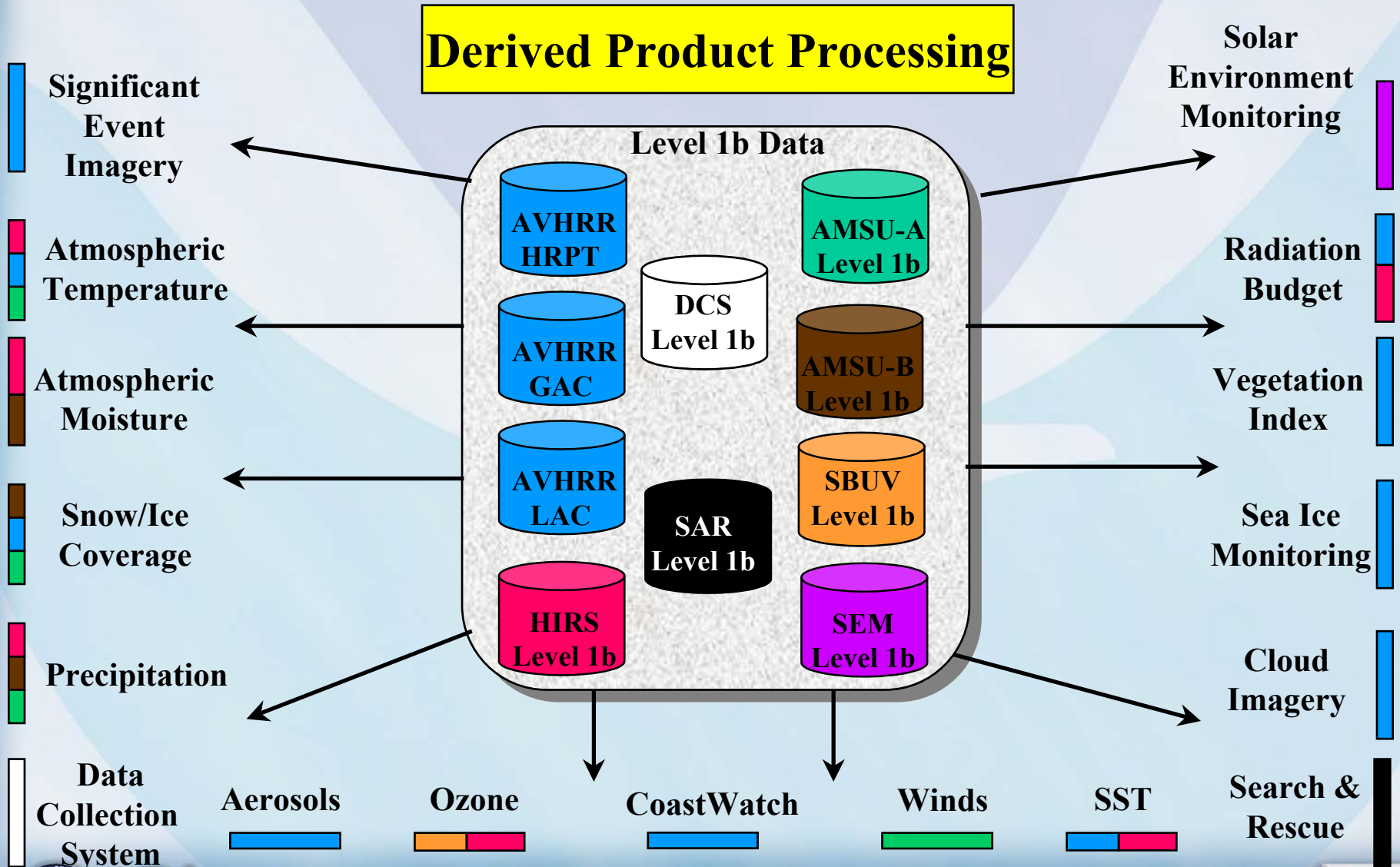
Fairbanks, AK (CDA) Wallops, VA (SOCC)
Suitland, MD

Earth Location/Calibration

- | | | | | | | | | | | | |
|-------------------|--------------------------|---------------------------|----------------|----------------------------------|------------|----------------|------------|--------------|----------------|-------------------------|--------------------|
| 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 |
| GLOBAL
IMAGERY | SIG.
EVENT
IMAGERY | GLOBAL
VEG.
INDEX # | COASTAL
SST | GLOBAL
SEA
SURFACE
TEMP | AEROSOL# | RAD.
BUDGET | OZONE # | SNOW/
ICE | ATMOS.
TEMP | MW
SURFACE/
HYDRO | ATMOS.
MOISTURE |
| (IMAGES) | (OSEI) | (GV) | (OCNMAP) | (SST) | (AEROSOL) | (RBPGRS) | (OOPS) | (IMS) | (ATOVS) | (MSPPS) | (AMSUB) |

Level 1B to Products

Derived Product Processing

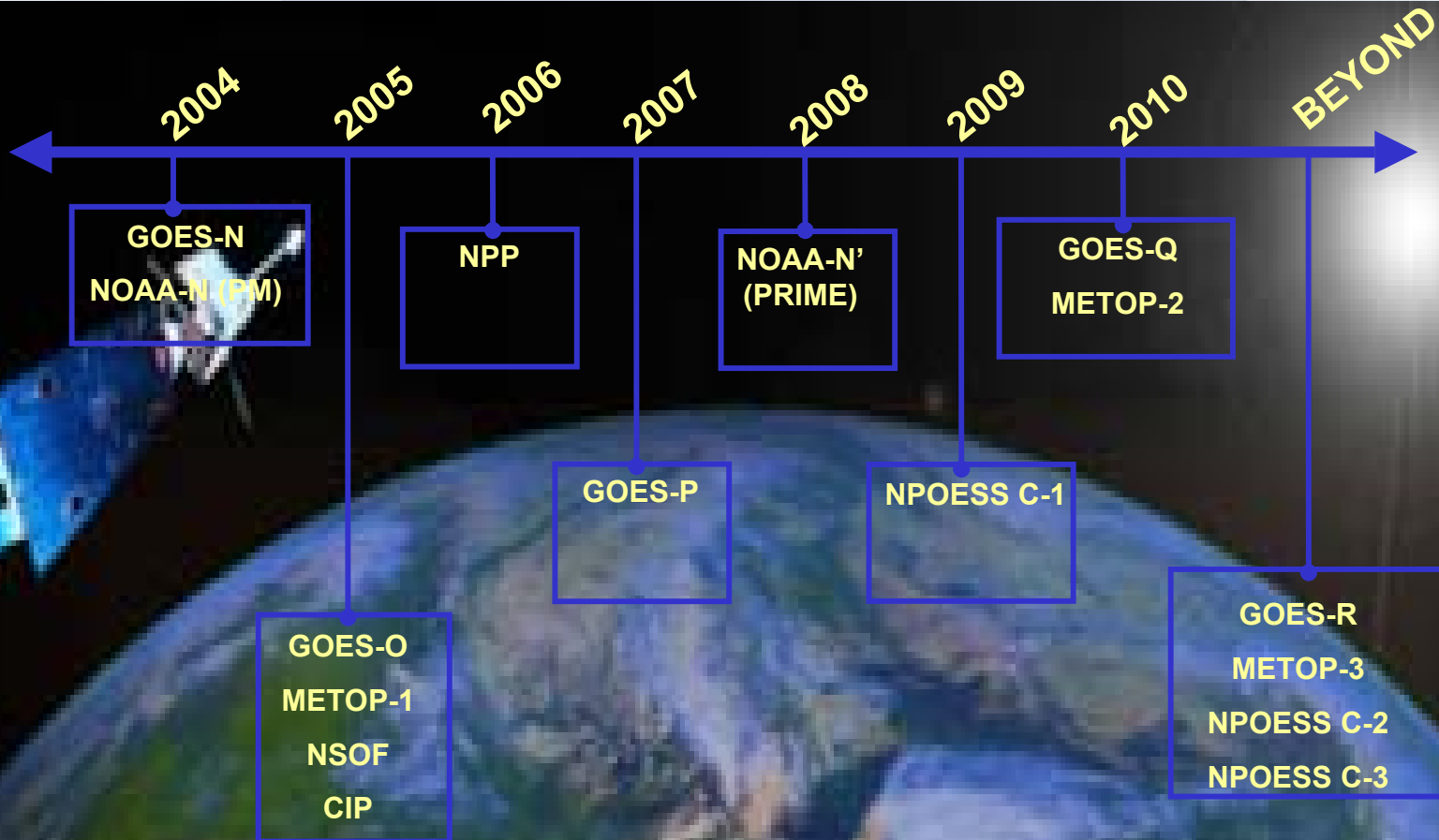


NOAA Satellite Operations Facility (NSOF)



Final Occupancy May – September 2005

Future Data Impacts



CEMSCS Data Volumes

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
NPP (TB)	0.00	0.00	0.00	862.86	862.86	862.86	862.86	862.86	0.00	0.00	0.00
NPOESS (TB)	0.00	0.00	0.00	0.00	0.00	0.00	978.20	978.20	1956.40	1956.40	2941.92
METOP (TB)*	0.00	0.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00
POES (TB)	2.26	2.26	2.26	2.26	2.26	2.26	1.00	1.00	1.00	1.00	1.00
GOES (TB)	12.41	12.41	12.41	12.41	12.41	12.41	12.41	12.41	75.00	330.00	330.00
DMSP (TB)	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Non-NOAA (TB)	66.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Ingested Annually (TB)	81.28	82.28	99.28	962.14	962.14	962.14	1939.08	1939.08	2117.01	2372.01	3357.52
Terabytes per day - (Divide annual volume by:	0.222674	0.225414	0.271989	2.635989	2.635989	2.635989	5.312537	5.312537	5.800016	6.498647	9.198647

By 2013, IPD will be ingesting 9 times the number of TB per day.

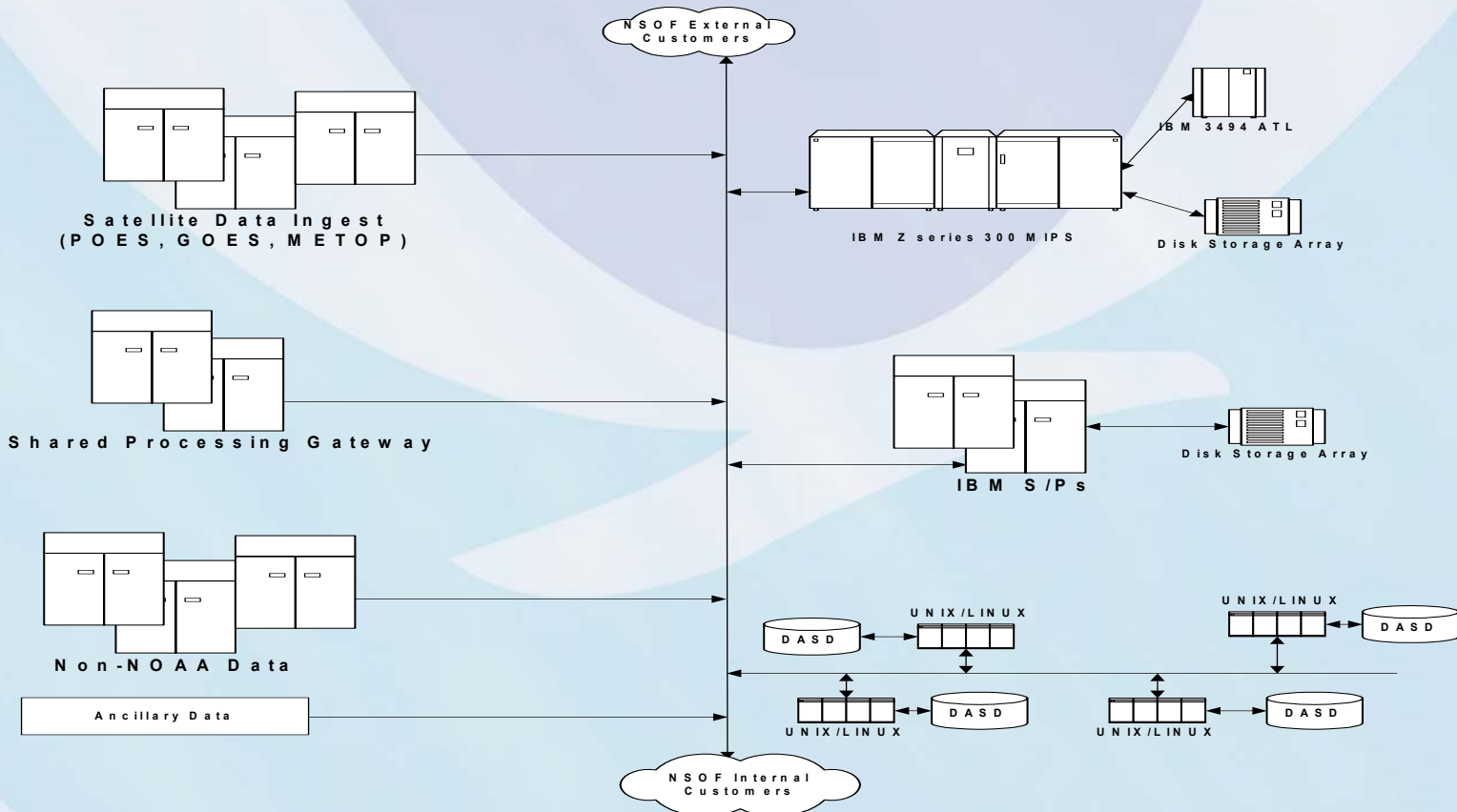


CEMSCS Architecture

2005 Phase I

Data Ingest/Receipt

Processing and Distribution

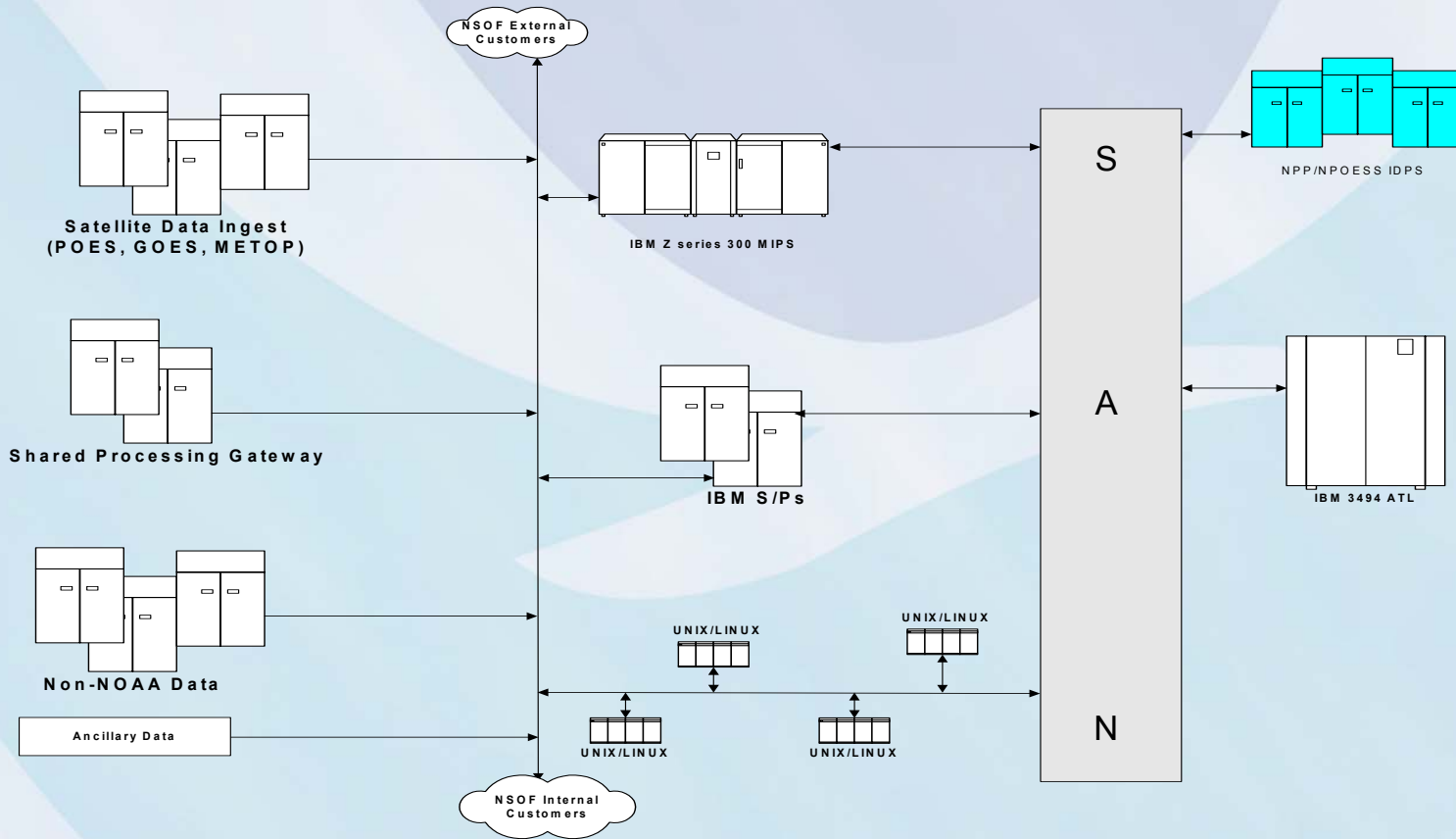


CEMSCS Architecture

2005 - 2006 Phase II

Data Ingest/Receipt

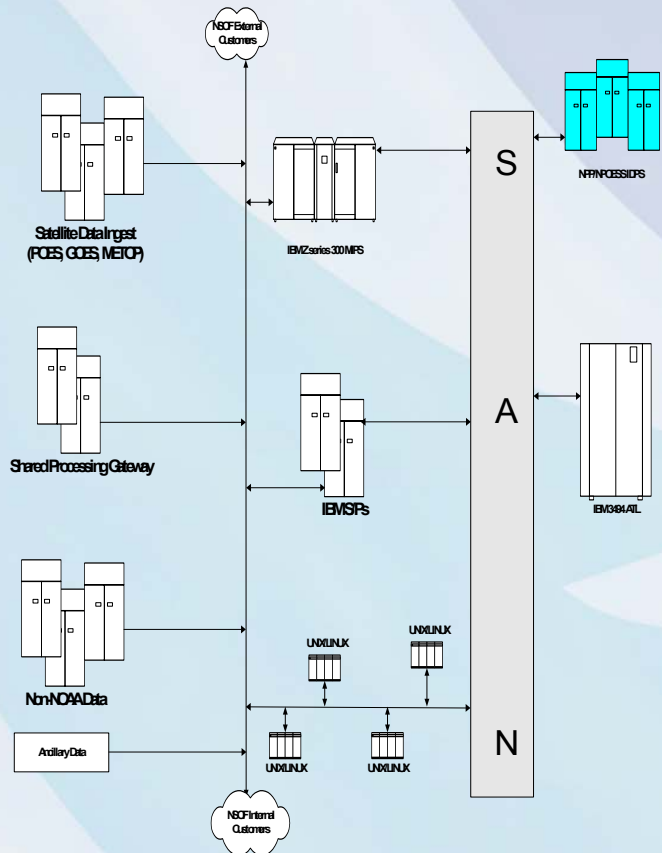
Processing and Distribution



CEMSCS Architecture

2005 - 2006 Phase III

NSOF



CIP Site

