



# DAS / LRGS Receive Systems





The DAS (formerly known as LRGS) is a universal receiver that can provide unlimited local storage for your raw station data. It provides the de-facto standard DDS (DCP Data Service) network protocol for distributing data to your processing applications.

DAS aka LRGS now supports data reception via LRIT, DOMSAT, GOES-DRGS, NOAAPORT, GPRS, Iridium, Direct-IP, Radio, and Internet.





Sutron provides commercial support for DAS that includes:

- Turnkey system installations,
  - Software subscription, maintenance & technical support
  - Custom enhancements or integration.
- DAS is installed at almost 30 USACE locations & 30 USGS locations.
  - Total DAS installations as of 2014 - more than 200



# What is DAS?



1. Universal ground station that receives DCP data from any combination of the following:
  - ▶ GOES DRGS (DAMS-NT)
  - ▶ DOMSAT
  - ▶ NOAAPORT
  - ▶ LRIT
  - ▶ Internet links to other LRGS (DDS Receive)
  - ▶ Internet DCPs
  - ▶ Iridium SBD
  - ▶ Sutron XLinks
2. Archive size limited only by available disk space
3. Data stored in day-files, 30 days typical
4. 2-way communications with Iridium/GPRS/XLinks
5. Provides DDS (DCP Data Service) to send data to client programs
6. DECODES, Retrieval Processes, Browsers, Databases, etc.
7. Scripts monitoring LRGS send alarms if LRGS is down.



# Sutron's Tempest™ LRGS Receive Systems



## WHICH TEMPEST™ LRGS RECEIVE SYSTEM IS RIGHT FOR YOU?

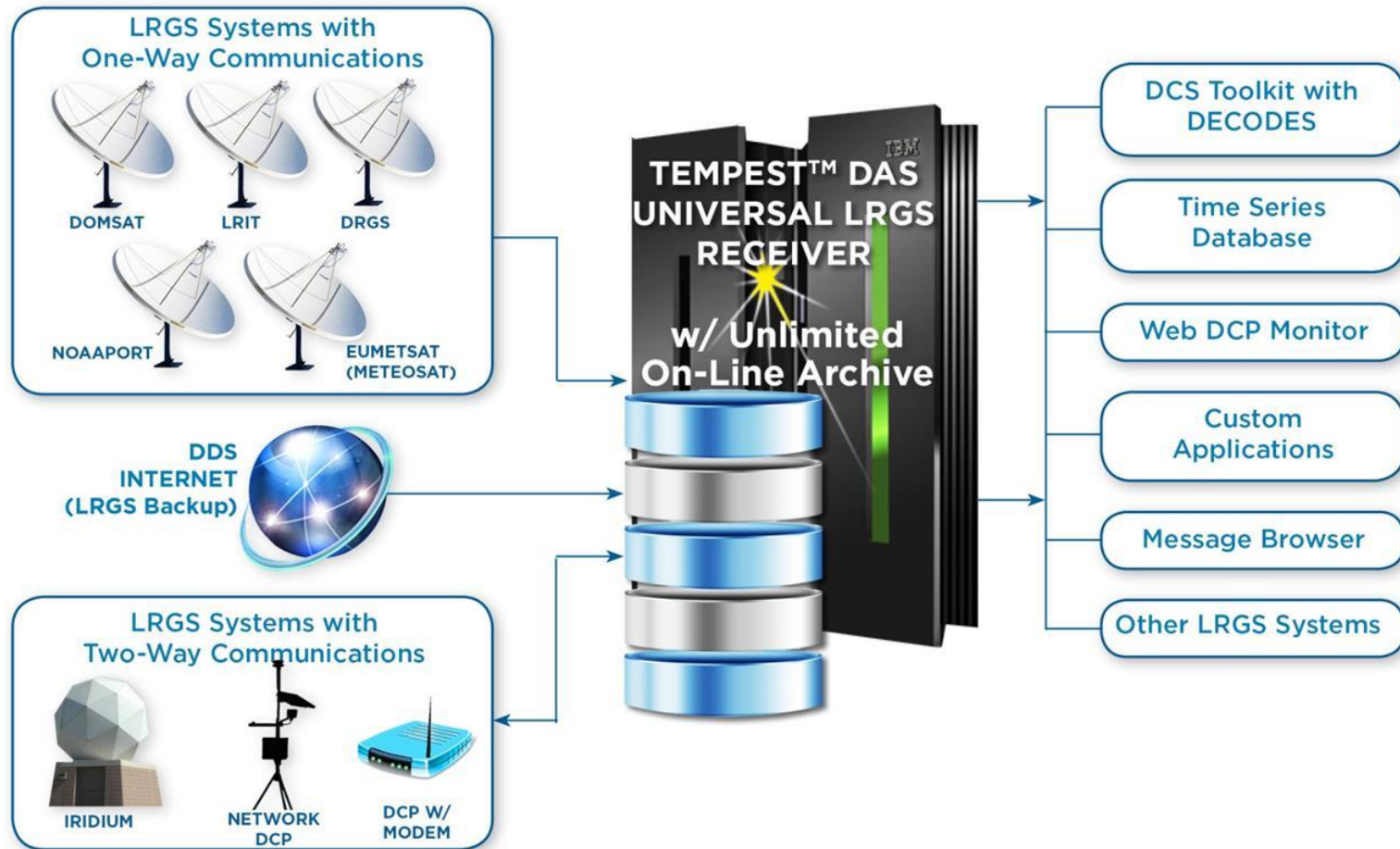
FEATURE	DOMSAT	LRIT	DRGS	NOAAPORT	EUMETSAT (METEOSAT)	IRIDIUM	DDS (Internet)	DCP w/ Modem
<b>Transmission Delay</b>	A few seconds	Up to a few minutes. Typically less.	Immediate Transmission	A few minutes	A few seconds	Immediate Transmission	A few seconds	A few seconds
<b>Geographic Coverage</b>	Continental USA	Western Hemisphere	Western Hemisphere	Continental USA	Europe & Africa	Worldwide	Worldwide	Worldwide
<b>GOES Channel Coverage</b>	All channels	All channels	Demodulators Needed for Each Channel	Limited to DCPs Observed by NWS	n/a	n/a	All channels	n/a
<b>Relies on NOAA Wallops</b>	Yes	Yes	No	Yes	No	No	Depends on Source Server	No
<b>Provides Two-Way Communications</b>	No	No	No	No	No	Yes	Yes	Yes



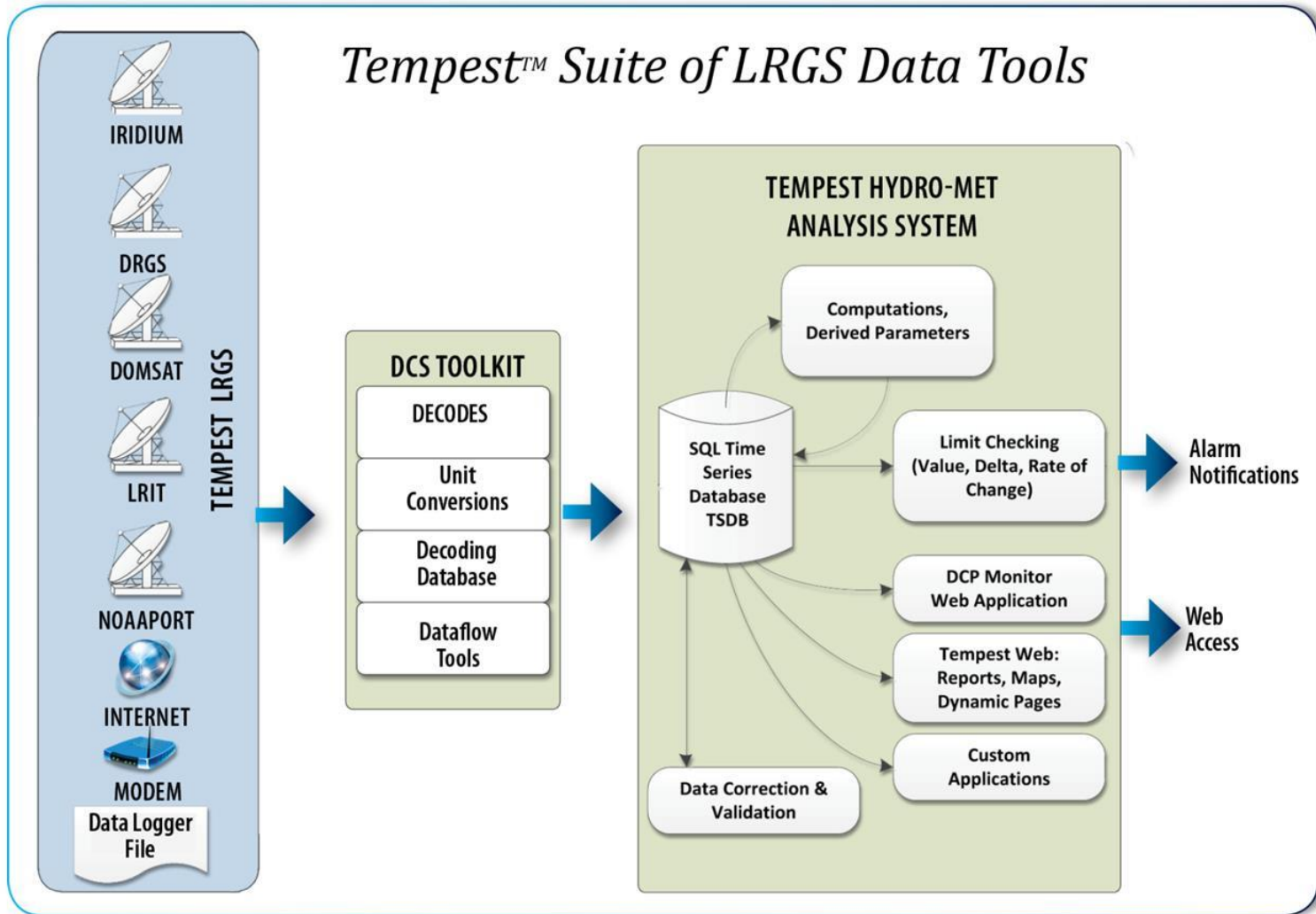
# DAS - Universal LRGS Receive System



## Sutron's Universal Data Acquisition Server (DAS) for LRGS Systems



# Complete Suite of LRGS Data Tools





## DAS can receive data from Direct Readout Ground Station (DRGS)

- ▶ It is one less satellite hop - *straight from the GOES satellite* - since you are not relying on NOAA to re-transmit.
- ▶ DRGS is recommended if data is absolutely mission critical (i.e., flood warning, etc.) and no latency can be risked
- ▶ Demodulators for each channel need to be purchased.





Sutron's GOES LRIT/LRGS System is a network appliance that captures real-time LRIT data from GOES 11/12/13/14/15 Satellites, ingests the data, & makes it available on a TCP/IP socket.

## *GOES LRIT/LRGS System Hardware Configuration*



**LRIT Dish**



**LRIT Receiver**



**LRI/LRGS Host PC**



**Network**



**DCS Tool/LRGS/  
Other Client PC**





## DAS/LRIT System Features

- Full support of LRIT data from GOES East & West.
- Easy installation (i.e., mount the antenna on a single post or patio mount & one cable feed to the receiver.)
- Data transferred from the receiver to the host computer via a 12 Mbit/s
- USB connection to ensure high speed & data integrity.
- High-quality, high-reliability hardware & software for trouble-free, long term, continuous operation.





## Features

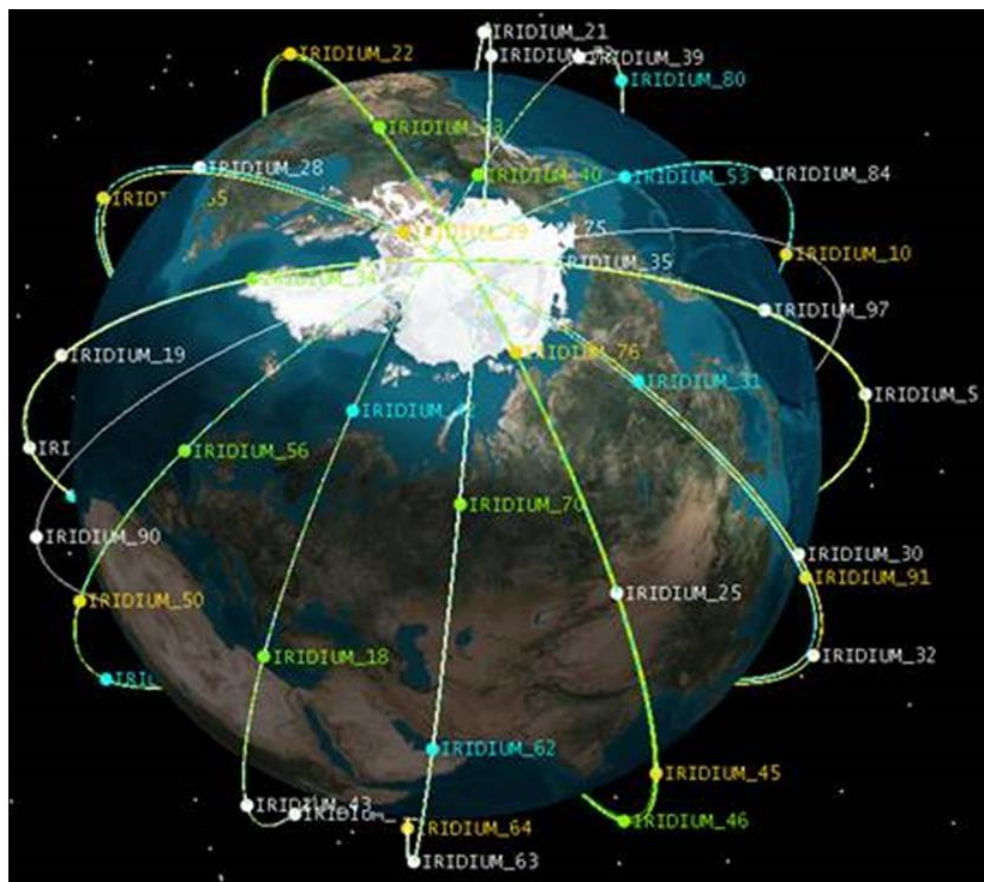
- ▶ Requires internet
- ▶ Requires static public IP address of the DAS Server
- ▶ DAS listens on port 10800 for Iridium® messages.
- ▶ Iridium gateway *pushes* data for up to 12 hours to increase the probability of receiving any data that might have been missed.
- ▶ 2-way communications to remote stations
- ▶ Message contains the approximate latitude & longitude information of each station.
- ▶ LRGS with Iridium looks the same to downstream applications as DECODES.
- ▶ Does not need a dish or receiver.
- ▶ DAS can forward Iridium® messages to other LRGS's on port 10800.



# DAS / Iridium®



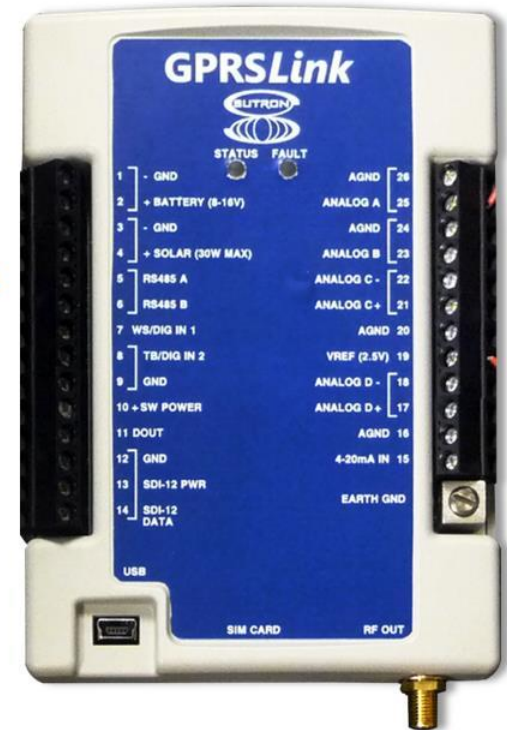
- ▶ Pole-to-pole coverage for voice & data
- ▶ Largest commercial satellite constellation in the world
- ▶ Fully meshed satellite network
- ▶ Requires only one gateway
- ▶ No reliance on regional infrastructure/ground routing
- ▶ Security ensured through digital network
- ▶ Low latency



# DAS / XLinks Features

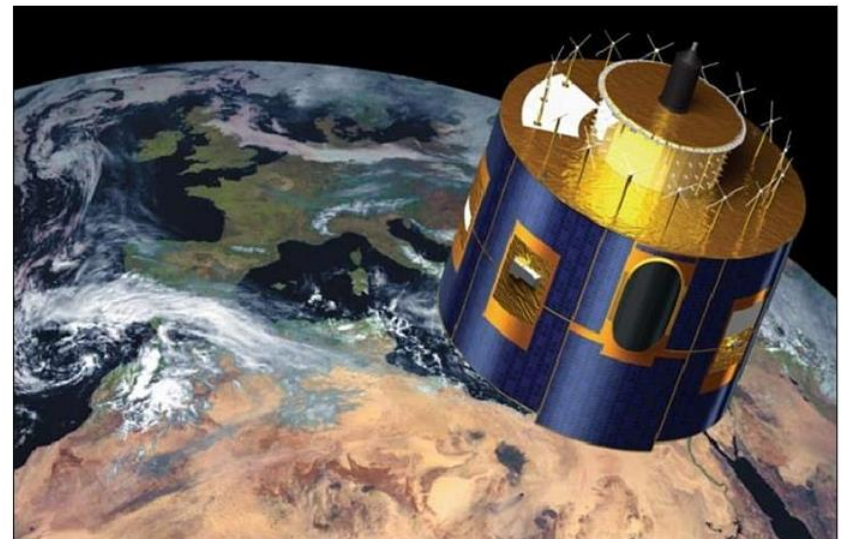


- ▶ Requires internet
- ▶ 2-way communications to remote stations
- ▶ Stations can call in directly to the DAS Server.
- ▶ DAS can send various commands to the station to get data.
- ▶ Time-tag poll from stations is possible.
- ▶ DAS with GPRS looks the same to downstream applications as DECODES.
- ▶ No need for a dish or receiver
- ▶ Low cost

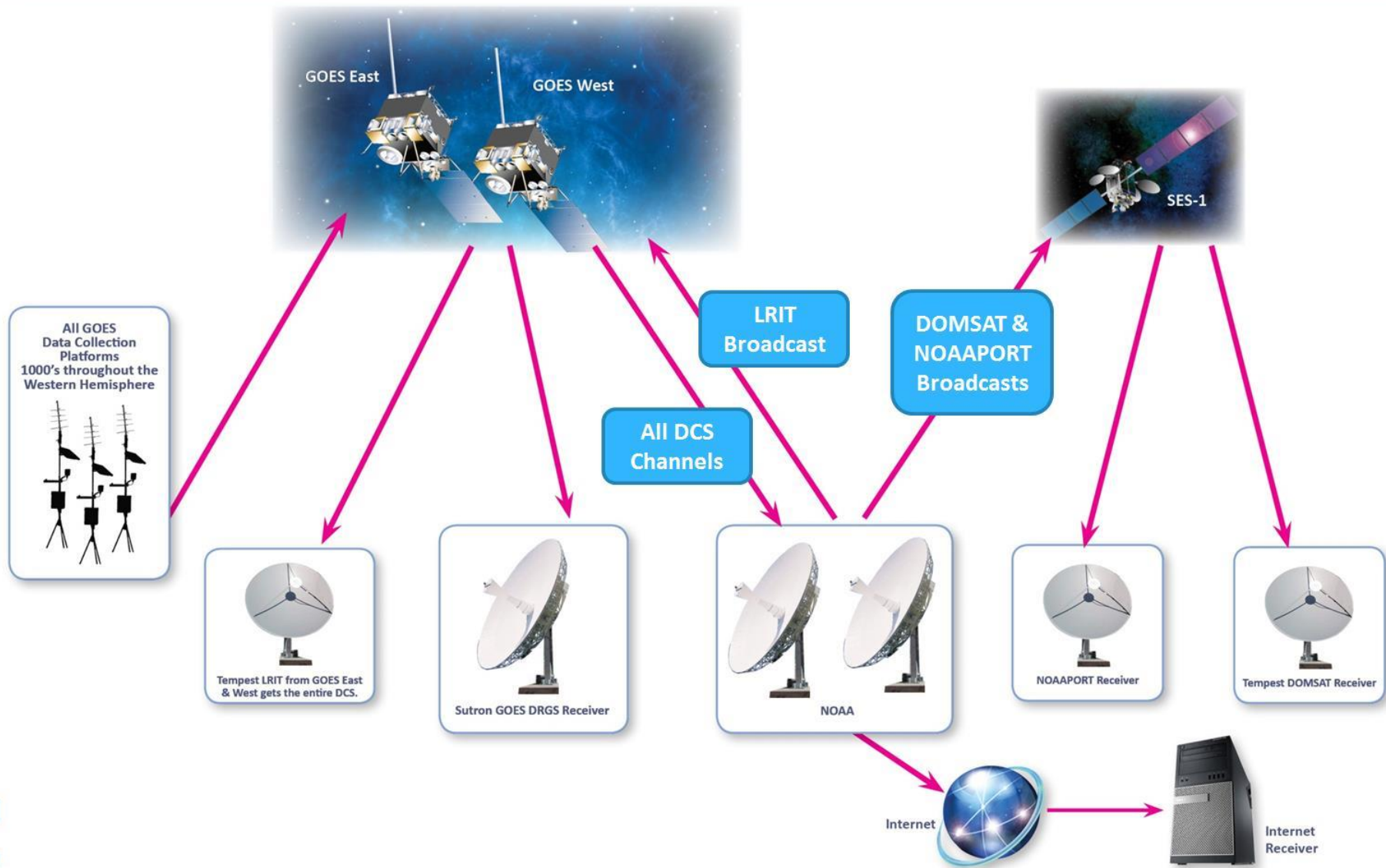




- ▶ Data from Meteosat is received through receiver . Data can also be sent over FTP to a directory on DAS Server.
- ▶ DAS reads the data from files & saves them in the archive directory.
- ▶ LRGS with Meteosat looks the same to downstream applications as DECODES,
- ▶ Possible to get data from EUMETSAT footprint.



# DAS / GOES





## DAS / DOMSAT System



**DOMSAT Dish**



**DPC DOMSAT  
Protocol Converter**



**LRGS**



**Network**



**DCS Tool /  
DRGS /  
Other Client PC**

