

Polar Orbiter Ingester

Ingest software for HRPT, AHRPT, DMSP and X-Band EOS data from NOAA, Metop, Terra, Aqua, Suomi NPP, JPSS, FengYun-3 (FY-3) and DMSP-5D satellites

🐘 Dartcom Polar Orbiter Ingester				– 🗆 X
General Scheduler Satellites Antenn		Terra Aqua NPP JPSS-	1 JPSS-2 FY-3 L FY-3 X	Tracking status Tracking Metop-C: az=154.2°, el=44.2°
Station Latitude: 50.5761 •N V	Prediction data Automatically update E	Every day 🗸 at 00 🛋 00	A V	Ingest status 🔘 AHRPT: Awaiting next packet
Longitude: 3.9385 °W $\scriptstyle{\lor}$	File URL		Local name	
Height: 416 — metres (above ellipsoid)	 ✓ https://ftp.dartcom.co ✓ https://www.celestrak ✓ https://www.celestrak 	o.uk/pub/preddata/twoline.tle o.uk/pub/preddata/tbus.new .com/NORAD/elements/weather.tb .com/NORAD/elements/resource.tt a.gov/ancillary/ephemeris/tle/drl.tte	t Resource.txt	
	Add file Remove file	Reset to defaults Downl	bad files now	
Paths Map overlays: C:\Program Files (x86)\Dartcom\Map	o overlays Choose	GNSS Source: Motorola Oncore M12- Port: Dartcom GPS Receiver	Settings	
Prediction data files:	choose	Speed: 9600bps Export position to file:		
C: \Users \Dartcom \AppData \Roaming	g\partcom\P Choose	C: \Users \Dartcom \AppData \R	oaming\Dartcom\C Choose	✓ Show overlays Thu, Apr 28, 2022 @ 09:58:20 (UTC) Metop-C, Southbound, to East
			Apply settings	Output status AHRPT: Awaiting next file
Scheduler status Idle				Cending in 4:57
Satellite AOS	LOS Min Way	Lat Lon Az El	EQX TEQX AZ: 15	3.8° - () / / / / / / / / / / / / / / / / / /
Today			Lat: 44	i.gen / X / I / All X / All X / All X
Metop-C 09:58:20	10:11:03 12.7 S-E 71	L.0°N 19.6℃ 19.2° 5.0°	179.2°W 09:28:13 Lon: 0. Alt: 82	
Terra 10:12:35	10:23:09 10.6 S-E 67	7.5°N 22.2℃ 27.5° 5.0°	170.4°W 09:42:06	/ X / / ** * X*
).8°N 21.7℃ 21.0° 5.0°	177.5°W 10:00:14	
		2.7°N 10.7℃E 10.9° 5.0°	168.6℃ 10:15:56 Sun	
		9.3°N 25.2°E 107.2° 5.0°	35.3°E 11:04:34 Az: 13	
		3.6°N 0.6°W 2.4° 5.0°	155.4°E 11:09:35 Lat: 14	1.2°N Lat: 50.6°N
		L.6°N 3.0°E 6.0° 5.0°	164.9°E 11:20:59 Lon: 2	
Aqua 12:03:47	12:14:03 10.3 N-E 35	5.8°N 17.5°E 125.2° 5.0°	26.0°E 11:53:49 ∨ ✓ Show	w sun Zoom: Lat: 42.49°N, Lon: 002.12°W
Help About Diagnostics	Lock	Mode: Off Manual Trad	Ingest Access: Normal	Advanced Engineer

The Dartcom Polar Orbiter Ingester software tracks NOAA, Metop, DMSP, Terra, Aqua, Suomi NPP, JPSS and FengYun-3 (FY-3) satellites and ingests HRPT, AHRPT, DMSP and X-Band EOS data automatically.

Ingested data can be output to a range of formats and processing software. It can then be displayed and processed further using the Dartcom iDAP/MacroPro software.

Features of the Polar Orbiter Ingester software include:

- Multi-threaded architecture allowing ingest of a pass while the previous one is being processed.
- · Automatic pass scheduling with manual override.

- Automatic satellite tracking, ingesting, archiving and output.
- · Calibration and navigation of HRPT, AHRPT and DMSP data.
- Output of Terra, Aqua, Suomi NPP and JPSS data to NASA RT-STPS and IPOPP processing software, and FY-3 data to CMA FY3L0pp processing software.
- Automatic GNSS position and time synchronisation.
- Automatic downloading and updating of satellite prediction data.
- Temperature monitoring with automatic tracking lockout if limits exceeded (requires optional temperature sensor unit).
- Full diagnostics facilities with on-screen and email alarms.

Satellite tracking

- Automatic calculation of pass schedule covering up to 15 days, with parameters including satellite selections, time windows, latitude limits and data type prioritisation.
- · Manual schedule editing, with changes saved automatically.
- Automatic satellite tracking, with dedicated thread for minimum latency and maximum update frequency.
- Configurable antenna park mode to allow ingest of LRIT/HRIT data (requires optional Dartcom Geostationary Ingester software).
- PC time automatically synchronised within 20ms of GNSS time.
- Station position automatically updated from GNSS source, with automatic schedule recalculation if a significant change occurs.
- Automatic downloading and updating of satellite prediction data.

Data ingest

- HRPT, CCSDS, DMSP and X-Band EOS ingest engines supporting HRPT, AHRPT, DMSP, Terra, Aqua, Suomi NPP, JPSS and FY-3.
- Automatic receiver control and data ingest, with multi-threaded architecture for minimum latency and maximum throughput.
- Calibration and navigation of HRPT, AHRPT and DMSP data.
- Live preview displayed during HRPT, AHRPT and DMSP ingest, with automatic enhancement and creation of map overlays.

Archiving and output

- Automatic archiving of ingested data for up to 366 days with the option to group passes into folders by date.
- Output of HRPT, AHRPT and DMSP image data to Dartcom iDAP/MacroPro software for display and processing.
- Output of HRPT data to NOAA level 1B and other raw formats, together with ancillary data such as TIP and DCS.
- · Output of AHRPT data to EPS level 0 format.
- Output of HRPT, AHRPT and DMSP image data to PCI Geomatica, ERDAS IMAGINE, ENVI/IDL and GeoTIFF formats.
- Output of Terra, Aqua, Suomi NPP and JPSS data to NASA RT-STPS and IPOPP processing software, and FY-3 data to CMA FY3L0pp processing software.

Diagnostics and maintenance

- · Access control and password locking to prevent tampering.
- Event logging with storage monitoring and on-screen and email alarms for serious events.
- Temperature monitoring with automatic tracking lockout if limits exceeded (requires optional temperature sensor unit).
- Manual rotator control with detailed diagnostics displays, sun track mode, exercise mode and calibration facilities.

General Scheduler Satellites Antenna HRPT AHRPT DMSP Terra Aqua NPP JPSS-1 JPSS-2 FY-3 L FY-3 X

Parameters					Mode
Schedule length:	2	days	Resolve overlaps: Longest	pass 🗸	Automatic
Minimum pass:	9.0	minutes	Prioritise data types		The pass schedule is calculated automatically and cannot be edited.
Inter-pass gap:	0.2	minutes	FY-3L-band FY-3X-band	Highest	Manual The pass schedule is calculated
Minimum elevation:	5.0	•	JPSS-1 NPP		automatically but can be edited. Changes are preserved if the schedule is recalculated.
Minimum latitude:	90.0000	°S ∨	Aqua Terra		is recalculated.
Maximum latitude:	90.0000	9N ~	HRPT AHRPT DMSP		Overrides Overriding can cause serious damage and is not recommended.
	to East o		LRD		
Times:	V to west t	or stauorr			Override temperature monitor Tracking will continue even if
00 00 to 23 5	9	+ -			temperatures exceed configured limits.
		Reset		Lowest	
			Move up Move down		

Scheduler tab allowing configuration of pass schedule

General	Scheduler	Satellites	Antenna	HRPT	AHRPT	DMSP	Terra	Aqua	NPP	JPSS-1	JPSS-2	FY-3L	FY-3 X
Comr		Serial Dartcom		DM7)	Setting	S	Port:	Name Radom	Tempera	net	in (°C)	Max (°C	
	ration =0x000001	3A, EOFF=I	xFFFFBF0	4	Calibrat	e	Status Rotato Azim		en - will b	oe opened	l automa Elev	tically wh	en required
Azimu	al control uth: < ation: < ve Park	Inv	ert Tr	> 0° > 0° ack sun	ST		-	i Na			Normal Refresh	Detaile	Inverted

Antenna tab allowing configuration and control of antenna



Ingester tab allowing configuration of ingesting, archiving, outputs, receiver settings and ingest time windows

Implementation Implementation Implementation Implementa	tput name: Latest AHRPT			Temperature monitor status
overlays: Ouse default	ub-sample	(@ Whole mape)Selected are:)Selected are:)Selected are:)Selected are: ()Selected	Path: © Use de C:\P File name: © Use o. Marchive © Use default settir Use custom settir Path: C:\Pathco	Probe status 1: Controlet 12:1 cc 53.8 yr 00 cc 2: Radone Boar 5.6 yc 42.1 yr 00 cc 2: Radone Top 7.0 yc 44.6 yr 00 cc Uct 2 Hours 54 54 55 55 55 9 30 2 30 30 30 30 30

Temperature monitor window



Dartcom, Powdermills, Postbridge, Yelverton, Devon, PL20 6SP, UK

Phone 01822 880253 • International +44 1822 880253 Web www.dartcom.co.uk • Email sales@dartcom.co.uk

Copyright © 2023 Dartcom Systems Ltd. Specifications and prices may be changed without notice. Correct from 27th September 2023. E&OE. Dartcom is a trading name of Dartcom Systems Ltd, a company registered in England and Wales no. 08224621, VAT no. GB150533050, registered office as above.