

## Imager Environmental Parameters File (ENVDAT)

**Created By:** EDRP

**Used By:** GRID, User

**Format:** Binary, direct access

**Description:** This file contains environmental data for each scan scene at surface reference and 25-kilometer resolution.

### Data Elements

#### Revolution header

Data Element	Description	Validity Check	Unit of Measure	Precision	Limit/Range	Accuracy	Data Type
File Info Word	File information for internal use [First 2 Bytes contain Software Rev #-- 42 for Rev 4B (for example) 3rd Byte contains Endian type- 1=Big/0=Little 4th Byte contains <b>File ID of 4</b> -for EDR	N/A	None	1	0 to 2147483647	N/A	Integer
Revolution Number	Revolution Number (full)	N/A	None	1	0 to 2147483647	1 orbit	Integer
Year	Starting Year	N/A	Year	1	0 to 9999	1 year	Integer
Julian Date	Starting Julian day	N/A	Days	1	1 to 366	1 day	Integer
Hour	Starting hour	N/A	Hours	1	0 to 23	1 hour	Integer
Minute	Starting minute	N/A	Minutes	1	0 to 59	1 minute	Integer
Satellite ID	Satellite ID 1=First Sensor=Ser# 1 2=unassigned 3=unassigned	N/A	None	1	1 to 3	N/A	Integer
Number of scans	Number of scan in file	N/A	N/A	1	1 to 32767	N/A	Integer
SDR Constants File ID	3 Characters to identify the constants file used in processing SDRs	N/A	N/A	N/A	0-255	N/A	Integer (ASCII Code)
SDR Constants File Checksum	Code unique to the contents of the constants file used to process SDRs-any file changes whatsoever will modify the value	N/A	N/A	1	65535	N/A	Integer
EDRP Constants File ID	3 Characters to identify the constants file used in EDRP processing.	N/A	N/A	N/A	0-255	N/A	Integer (ASCII Code)
EDRP Constants	Code unique to the contents of the constants	N/A	N/A	1	65535	N/A	Integer

File Checksum	file-any file changes whatsoever will modify the value.						
Spare & Spare 1	Spare fields for future growth	N/A	N/A	N/A	N/A	N/A	Integer

### Scan Header

Data Elements	Description	Validity check	Unit of Measure	Precision	Limit/Range	Accuracy	Data Type
Year	Scan year	N/A	Years	1	0 to 9999	1 year	Integer
Julian Day	Scan Julian day	N/A	Days	1	1 to 366	1 day	Integer
Hour	Scan hour	N/A	Hours	1	0 to 23	1 hour	Integer
Minute	Scan minute	N/A	Minutes	1	0 to 59	1 minute	Integer
Environmental scan time	Millisecond since midnight for 0..24 scans	N/A	msec	1	0 to 86400000	1 msec	Integer
Environmental scan counts	Scan count number	N/A	None	1	2 to 32767	N/A	Integer
Number of Scenes	Number of scenes in a scan	N/A	None	1	0 TO 90	N/A	Integer
Spare	N/A	N/A	N/A	N/A	N/A	N/A	Integer

### Scene Data

Data Element	Description	Validity check	Unit of Measure	Precision	Limit/Range	Accuracy	Data Type
Latitude	Scene latitude (+ north)	N/A	degrees *100	1	-9000 to 9000	100th deg	Integer
Longitude	Scene latitude (+ east)	N/A	degrees *100	1	-18000 to 18000	100th deg	Integer
Rain Flag 1	Rain flag for previous imager scene -1 = indeterminate 0 = no rain 1 = rain	N/A	None	1	-1 to 1	N/A	Integer
Rain Flag 2	Rain flag for next imager scene -1 = indeterminate 0 = no rain 1 = rain	N/A	None	1	-1 to 1	N/A	Integer
Rain rate	Rain rate	N/A	mm.hour	1	-1 to 127	+ 5mm/hr	Integer
Scene count	Scene count	N/A	None	1	1 to 90	N/A	Integer
Surface tag	Static surface tag -1 = Unknown 0 = Land 1 = Spare	N/A	None	1	-1 to 7	N/A	Integer

	2 = Near coast 3 = Ice 4 = Possible ice 5 = Ocean 6 = Coast 7 = Spare						
Land SFC type	Land surface type -1=Undetermined 0 to 6 - Spare 7 = Floods 8 = dense vegetation 9 = Agricultural/Range Vegetation 10 = Dry arable soil 11= Moist soil 12 = Semi-Desert 13 = Desert 16 = Composite vegetation and water 17 = Composite soil and water 18 = Dry snow 19 = Wet snow 20 = Refrozen snow 21 = Glacial ice	N/A	None	1	-1 to 21 See description	N/A	Integer
Snow depth	Snow depth over land  -1 = Undetermined	N/A	mm	1	-1 to 32767	1 mm	Integer
Soil moisture	API converted  -1 = Undetermined	N/A	mm	1	-1 to 70	+ - 1mm goal	Integer
Land surface temp	Surface temperature over land  -99 = Undetermined	N/A	Celsius	1	-99, -95 to 67	1 degree	Integer
Ice edge, Snow edge	Sea ice edge or snow edge 0 = No edge 1 = Ice edge 9 = Undetermined	N/A	None	1	0, 1, 9	N/A	Integer
Ice concentration	Sea ice concentration -1 = Undetermined	N/A	Percent	1	-1 to 100	5%	Integer
Ice age	Sea ice age -1 = Undetermined 2 = First year 4 = Multiyear	N/A	Years	1	-1, 2, 4	1 year	Integer
Ocean surface wind speed flag	Wind speed accuracy -1 = Undetermined 0 = <2 m/sec 1 = 2 - 5 m/sec 2 = 5 - 10 m/sec 3 = > 10 m/sec	N/A	None	1	-1 to 3	N/A	Integer
Ocean water vapor	Water vapor mass over ocean -1 = Undetermined	N/A	kg/m**2 *10	1	-1. 0 to 800	1/10th of kg/m**2	Integer

Ocean surface wind speed	Wind speed over ocean -1 = Undetermined	N/A	m/sec *10	1	-1, 0 to 500	0.1 m/sec	Integer
Ocean cloud water	Cloud water over ocean -1 = Undetermined	N/A	kg/m**2 *100	1	-1, 0 to 600	0.01 kg/m**2	Integer
Surface snow water content	Snow water content over land  -1 = Undetermined	N/A	mm	1	-1 to 250	1 mm	Integer
Spare	Spare fields for future growth	N/A	N/A	N/A	N/A	N/A	Integer

### File Format

This file contains 3 distinct types of records: 1) Revolution header, 2) Scan Header, and 3) Environmental Scene. The records are physically structured in the file in the following manner:

Revolution Header Record
Scan Header 1
Environmental Scene 1
Environmental Scene 2
⋮
Environmental Scene xx
Scan Header 2
Environmental Scene 1
Environmental Scene 2
⋮
Environmental Scene yy
Scan Header 3
Environmental Scene 1
Environmental Scene 2
⋮
Environmental Scene zz

The Revolution header specifies the number of Scan headers in the file. Each Scan header specifies the number of Environmental Scene records for that scan.

### Revolution Header

Byte#	1				32-bits
1-4	File Info Word				
5-8	Revolution Number				
9-12	Year				
13-16	Julian day	Hour	Minute		
17-20	Satellite ID	Number of scans			
21-24	SDR Constants File Checksum		ENV Constants File Checksum		
25-28	SDR Constants File Identifier			ENV Constants..	
29-32	.. File Identifier	Spare1			
33-40	Spare (2)				

### Scan Header

Byte#	1				32-bits
1-4	Year				
5-8	Julian day	Hour	Minute		
9-12	Environmental scan time				
13-16	Scan count	#Environmental scenes			
17-36	Spare (5)				

### Scene Data

Byte#	1				32-bits
1-4	Latitude		Longitude		
5-8	Rain flag 1	Rain flag 2	Rain rate	Scene count	
9-12	Surface Tag	Land surface type	Snow depth		
13-16	Land soil moisture	Land surface temp	Ice/Snow edge	Ice concentration	
17-20	Ice age	surf win sp flag	Ocean water vapor		
21-24	Ocean surface wind speed		Ocean cloud water		
25-28	Spare	Spare	Snow Water Content		
29-36	Spare (2)				