

ECS (EOSDIS Core System) Metadata Elements [Core Metadata]

	Metadata Element	Defined Names of Parameters in the TOOLKIT	Object Name in the HDF	Type	Estimated size (bytes)	Description
1	Orbit Number	TK_ORBIT_NUMBER	OrbitNumber	int	17	The orbit number to be used in calculating the spatial extent of this data.
2	Beginning Date	TK_BEGIN_DATE *****.tkyear *****.tkmonth *****.tkday	RangeBeginningDate	date	25	The date when the granule coverage began. Granule coverage defined as the orbit for Level-1 and Level-2 satellite data, as the hour of the granule for Level-1 and Level-2 ground validation data, as the day of the granule for rain gauge and disdrometer data, and as the pentad or month of the granule for Level-3 data.
3	Beginning Time	TK_BEGIN_TIME *****.tkhour *****.tkminute *****.tksecond	RangeBeginningTime	time	23	The time when the granule coverage began. See beginning date.
4	Ending Date	TK_END_DATE *****.tkyear *****.tkmonth *****.tkday	RangeEndingDate	date	22	The date when the granule coverage ended. See beginning date.
5	Ending Time	TK_END_TIME *****.tkhour *****.tkminute *****.tksecond	RangeEndingTime	time	20	The time when the granule coverage ended. See beginning date.
6	Granule ID	TK_GRANULE_ID	GranulePointer	char	48	ID of granule. Same as input file name. (ex. 1B12.19990706.1039.1)
7	ID of ECS Data Object	TK_DATA_ID	ShortName	char	66	The unique identifier of an ECS collection to which this granule belongs. (i.e. "Total Power, Noise", "PR Reflectivity")
8	Size MB ECS Data Object	TK_FILE_SIZE	SizeMBECSDataGranule	float	21	The size attribute will indicate the volume of data contained in the granule.

9	Longitude of Maximum Latitude	TK_LON_OF_MAX_LAT	LongitudeOfMaximumLatitude	char	50	Longitude of the northernmost extent of the satellite orbit. Decimal degrees with 6 figures precision after the decimal point. Positive east, negative west. A point on the 180th meridian is assigned to the western hemisphere.
10	Spatial Coverage Type	TK_SPAT_COV_TYPE	SpatialCoverageType	char	33	This attribute denotes whether the locality/coverage requires horizontal, vertical or both spatial domain and coordinate system definitions. "both"
11	Ellipsoid Name	TK_ELLIPSOID_NAME	EllipsoideName	char	50	Name of the ellipsoid. "World Geodetic System (WGS) 84"
12	Equatorial Radius	TK_EQ_RADIUS	EquatorialRadius	float	51	Equatorial radius of the earth ellipsoid (meters). "6378.137"
13	Denominator of Flattening Ratio	TK_FLATTENING_RATIO	DenominatorFlatteningRatio	float	51	The reciprocal of the flattening ratio, f, where $f = 1 - b/a$, a = Equatorial radius of the earth ellipsoid and b = Polar radius of the earth ellipsoid "0.00335281"
14	Orbit Model Name	TK_ORBIT_MODEL_NAME	OrbitModelName	char	98	The reference name to the orbital model to be used to calculate the geolocation of this data to determine global spatial extent. "Definitive FDF Ephemeris"
15	Semi Major Axis	TK_KEP_SEMI_MAJOR_AXIS	SemiMajorAxis	float	19	Half of the long axis of the orbit ellipse (meters). Used Geometric metadata.
16	Mean Anomaly	TK_KEP_MEAN_ANOMALY	MeanAnomaly	float	18	Angle around the orbit at the Epoch Time about the Ellipse center from the ascending node (radians). Used Geometric metadata.
17	Right Ascension of Ascending Node	TK_KEP_RIGHT_ASCEN_NODE	RightAscensionNode	float	42	Right Ascension in Geocentric Inertial Coordinates of the north bound equator crossing (radians). Used Geometric metadata.
18	Argument of Perigee	TK_KEP_ARG_OF_PERIGEE	ArgumentOfPerigee	float	28	Angle from the ascending node to perigee (radians). Used Geometric metadata.

19	Eccentricity	TK_KEP_ECCENTRICITY	Eccentricity	float	21	Eccentricity of ellipse (meters). Used Geometric metadata.
20	Inclination	TK_KEP_INCLINATION	Inclination	float	20	Angle between Orbit plane and Earth Equatorial plane (radians).
21	Epoch date	TK_KEP_EPOCH_DATE	EpochDate	date	19	Reference date for orbital elements. Used Geometric metadata.
22	Epoch time	TK_KEP_EPOCH_TIME	EpochTime	time	19	Reference time for orbital elements. Used Geometric metadata
23	Epoch milliseconds	TK_KEP_EPOCH_MILLISEC	EpochMillisec	int	20	Reference milliseconds for orbital elements. Used Geometric metadata
24	West Bounding Coordinate	TK_WEST_BOUND_COORD	WestBoundingCoordinate	float	29	The degree value for the west longitude of boundary. “-180”
25	East Bounding Coordinate	TK_EAST_BOUND_COORD	EastBoundingCoordinate	float	29	The degree value for the east longitude of boundary. “180”
26	North Bounding Coordinate	TK_NORTH_BOUND_COORD	NorthBoundingCoordinate	float	30	The degree value for the north latitude of boundary. “40”
27	South Bounding Coordinate	TK_SOUTH_BOUND_COORD	SouthBoundingCoordinate	float	30	The degree value for the south latitude of boundary. “-40”
28	Center Point Latitude	TK_CENTER_POINT_LAT	CenterLatitude	float	52	Latitude of center point of product.
29	Center Point Longitude	TK_CENTER_POINT_LON	CenterLongitude	float	52	Longitude of center point of product.
30	Radius	TK_RADIUS	RadiusValue	float	15	Distance in km from Point “-9999.9”
31	Latitude Resolution	TK_LATITUDE_RES	LatitudeResolution	float	27	The minimum difference between two adjacent latitude values expressed in Geographic
32	Longitude Resolution	TK_LONGITUDE_RES	LongitudeResolution	float	28	The minimum difference between two adjacent longitude values expressed in Geographic Coordinate units of measure. “-9999.9”
33	Geographic Coordinate Units	TK_GEO_COORD_UNITS	GeographicCoordinateUnits	char	112	Units of measure used for the latitude and longitude resolution values. “Decimal Degrees”.
34	Temporal Range Type	TK_TEMPOR_RNG_TYPE	TemporalRangeType	char	50	This tells the system how temporal coverage is specified for the granule.
35	QA Parameter Name	TK_QA_PARAM_NAME	QualityAssuranceParameterName	char	98	“Science Quality Flag”
36	QA Parameter Value	TK_QA_PARAM_VALUE	QualityAssuranceParameterValue	char	99	A post processing indication of quality by the algorithm developer. The Quality Indicator takes the form of 4 possible ASCII strings: “NOT

						BEING INVESTIGATED”, “BEING INVESTIGATED”. “FAILED”, or “PASSED”.
37	Reprocessing Status	TK_REPRO_STAT	ReprocessingActual	char	40	This attribute identifies the intent of the product author to reprocess the data (i.e. data gaps, geolocation accuracy, scientist review quality flags). “NULL”
38	Browse Package Reference	TK_BROUSE_NAME	BrowsePointer	char	105	This attribute will contain a system-resolvable reference to an HDF package containing a collection of browse granules. “NULL”
39	Contact Name	TK_CONTACT	ScienceContact	char	93	The name of the algorithm developer related to this granule. The contact name supplied here must exist in the ECS contact database. “NASDA Earth Observation Center”.
40	Mean Motion	TK_NUM_ORBITS	MeanMotion	float	50	Number of orbits per day, including fractions of orbits. Used Geometric metadata.
41	Orbit Adjust Flag	TK_ORBIT_ADJUST	OrbitAdjustFlag	int	50	Orbit Adjust Flag. Values are as follows: 0 = no orbit adjust activity during this orbit. 1 = orbit adjustment control modes occurred during this orbit.
42	Attitude Mode Flag	TK_ATTITUDE_MODE	AttitudeModeFlag	int	50	Attitude Mode Flag. Values are as follows: 0 = forward mode (+X forward) throughout this orbit 1 = backward mode (-X forward) throughout this orbit 2 = yaw maneuver during this orbit
43	Solar beta angle at beginning of granule	TK_BEGIN_SOLAR_BETA	SolarBetaAngleAtBeginningOfGranule	float	50	Elevation of sun in the orbit plane at the orbit start (degrees). Used Geometric metadata.

44	Solar beta angle at end of the granule	TK_END_SOLAR_BETA	SolarBetaAngleAtEndOfGranule	float	50	Elevation of sun in the orbit plane at the orbit start (degrees). Used Geometric metadata.
45	Sensor Alignment	TK_SENSOR_ALGN	SensorAlignment	char	100	Euler Sequence (3 integers) and Euler angles for rotation from spacecraft coordinates to sensor coordinates in degrees. (These are to be provided by the science team) “0.0, 0.0, 0.0, 1.2, 3”
46	Sensor Alignment Channel Offsets	TK_SENSOR_ALGN_CHAN_OFFSET	SensorAlignmentChannelOffsets	char	50* number of channels	Euler Sequence (3 integers) and Euler angles for rotation from sensor coordinates to Channel coordinates with angles separately for each channel in degrees. (These are to be provided by the science team if needed, but they are not nominally used in TSDIS processing since geolocation is not done per channel) “0”
47	Scan Path Model	TK_SCAN_PATH_MODEL	ScanPathModel	char	100	Parameters describing the scan path as used for pixel geolocation. For a (nominal) conical scan model the following parameters are used: Axis of Scan ($\pm 1, 2$, or 3). Reference Axis for zero rotation angle ($\pm 1, 2$ or 3), and Scan cone angular radius in degrees. Starting rotation angle relative to the scan axis in degrees, Total rotation angle spanned in degrees, Active scan duration time in seconds (between first and last pixel), and Time Offset between spacecraft time of the sensor data packet and the first pixel time, in seconds. “1.3, 90.0, -17.0, 34.0, 0.3, 0.0”
48	Scan Path Parameters Per Channel	TK_SCAN_PATH_PARAM	ScanPathModelParam	char	100	Parameters describing the scan path separately for each channel in degrees. (These are to be provided by the science

						team if needed, but they are not nominally used in TSDIS processing since geolocation is not done per channel) “0”
49	Ephemeris file descriptor	TK_EPHEM_FILENAME	EphemerisFileID	char	50	TSDIS granule ID for the ephemeris file. The format is EPHEM.YYMMDD.nn., where YY is year, MM is month, DD is day of the month, and nn is the version number.