

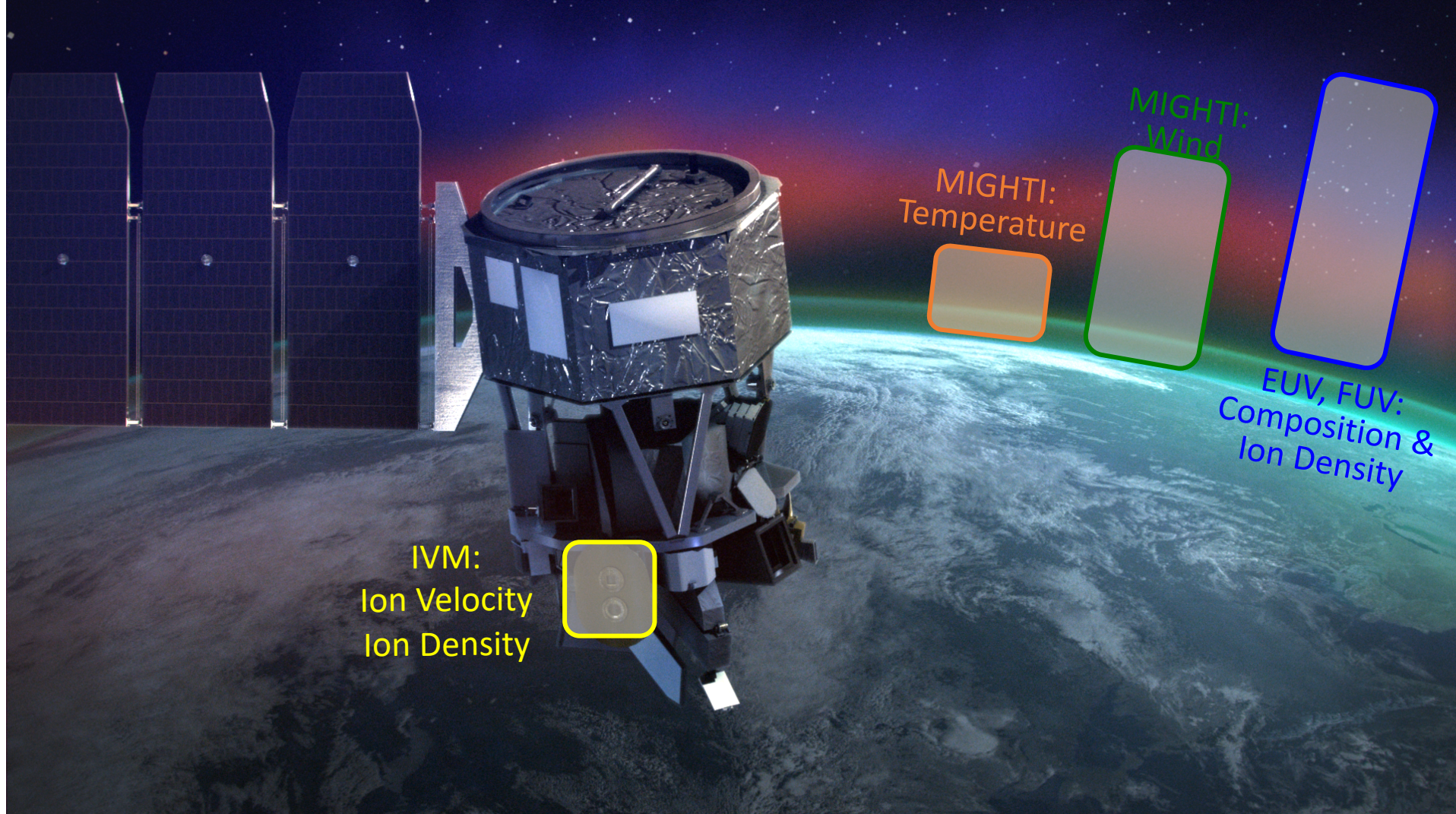


ICON

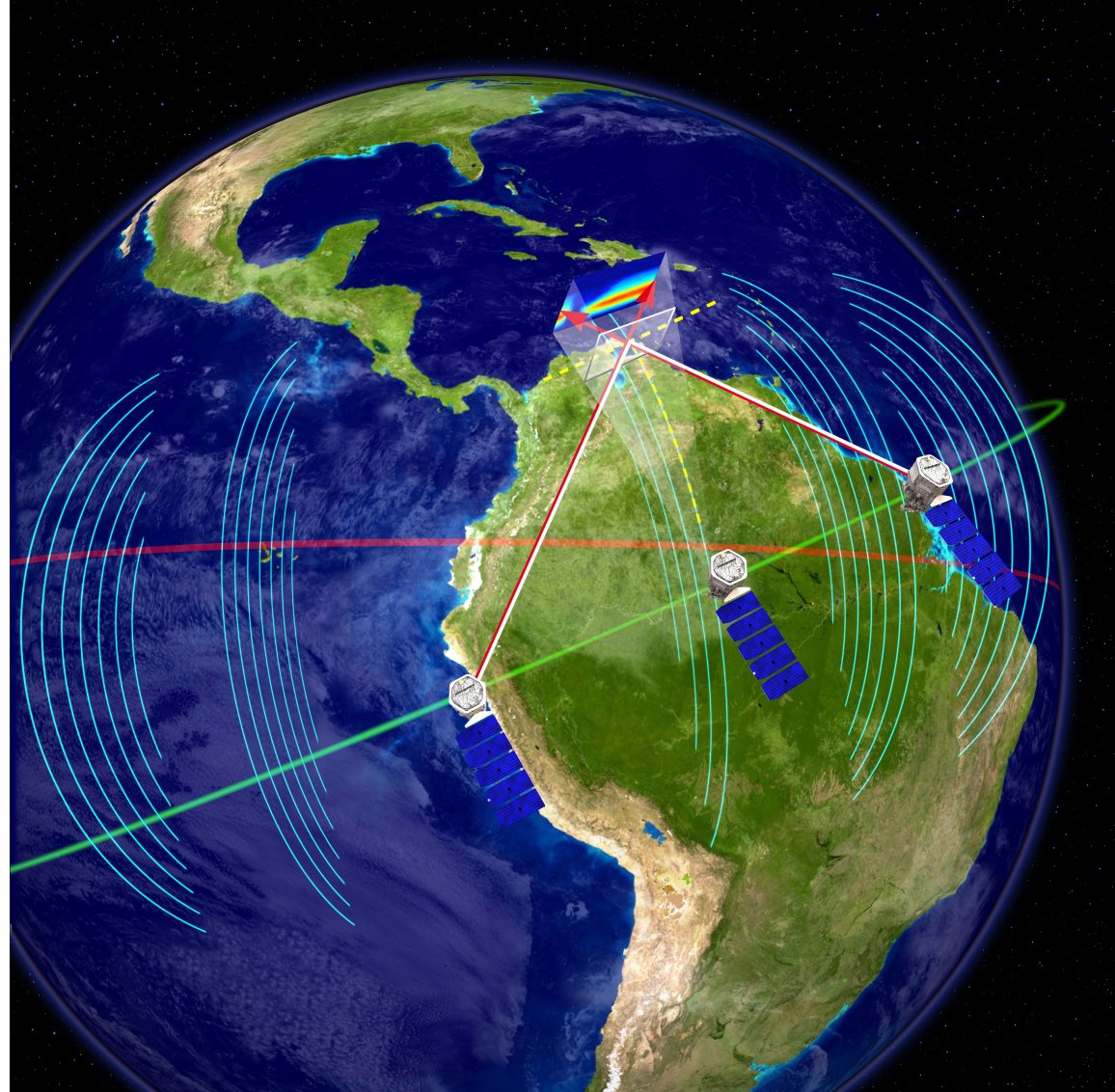
Instruments, Orbit, Sampling, Data

Scott England

Instruments

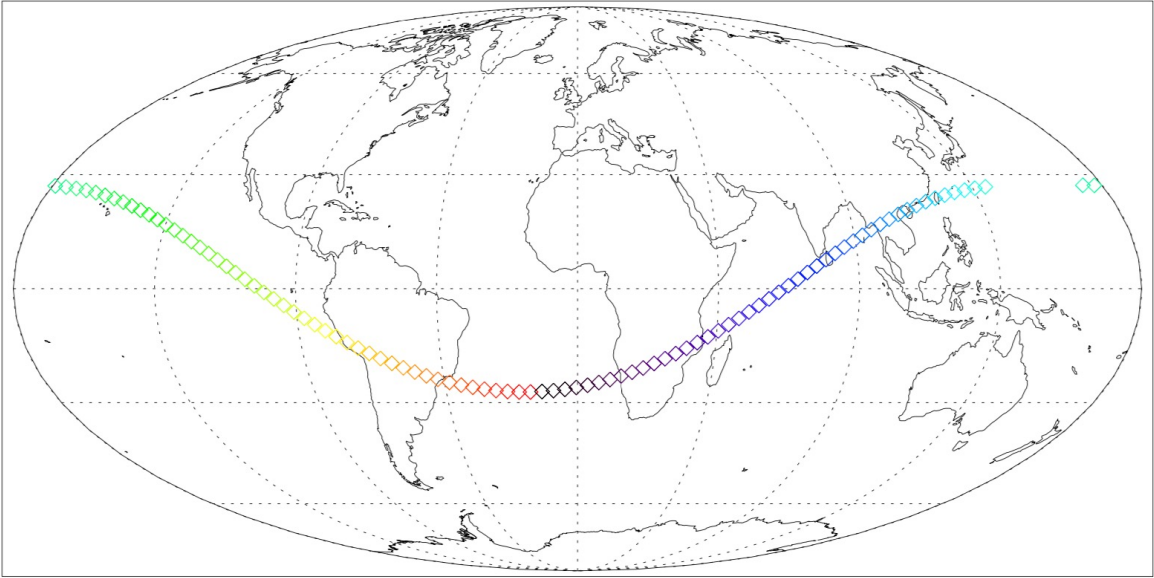


Instrument Views

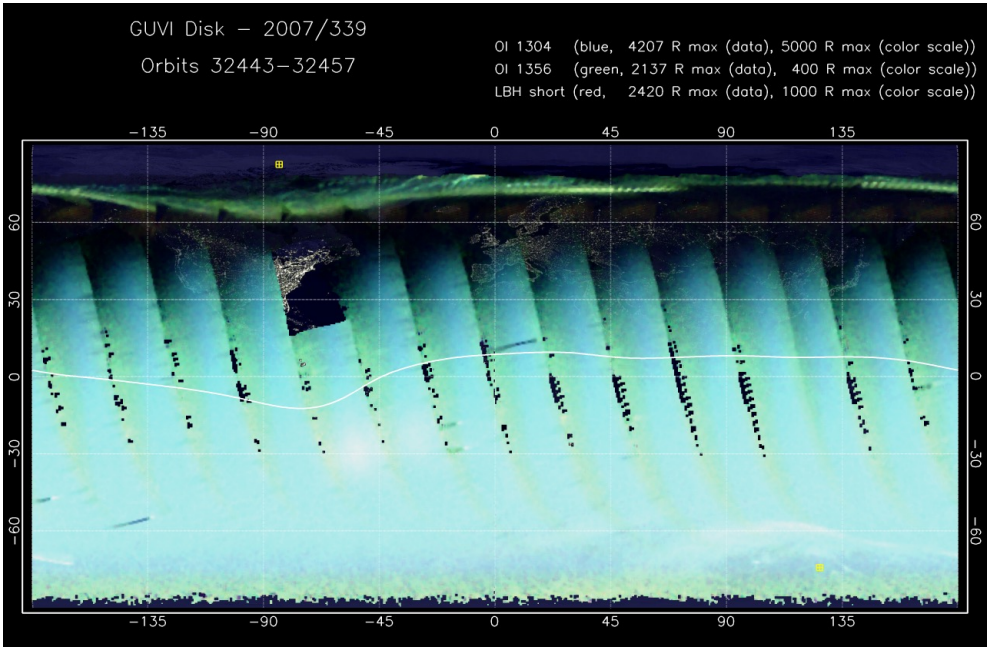


Orbit and Sampling

One Orbit



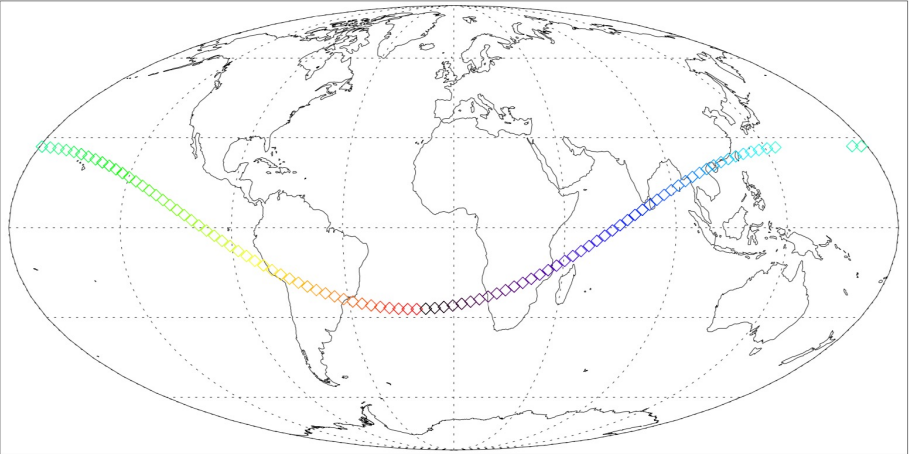
Color-coding indicates local time



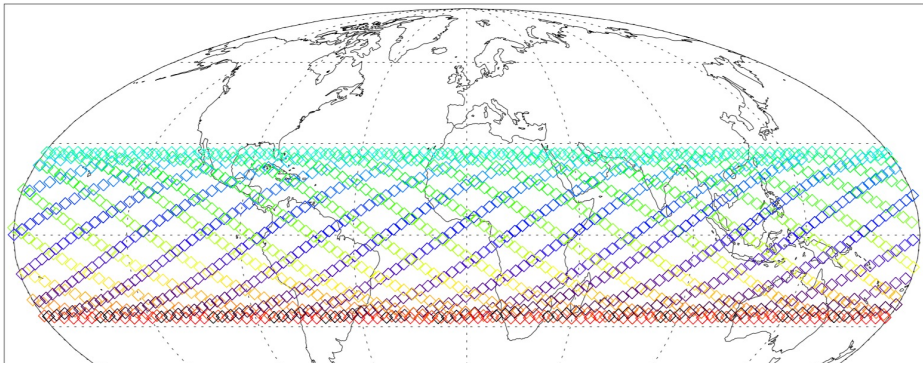
Example TIMED-GUVI coverage – near fixed local time, almost pole-pole

Orbit and Sampling

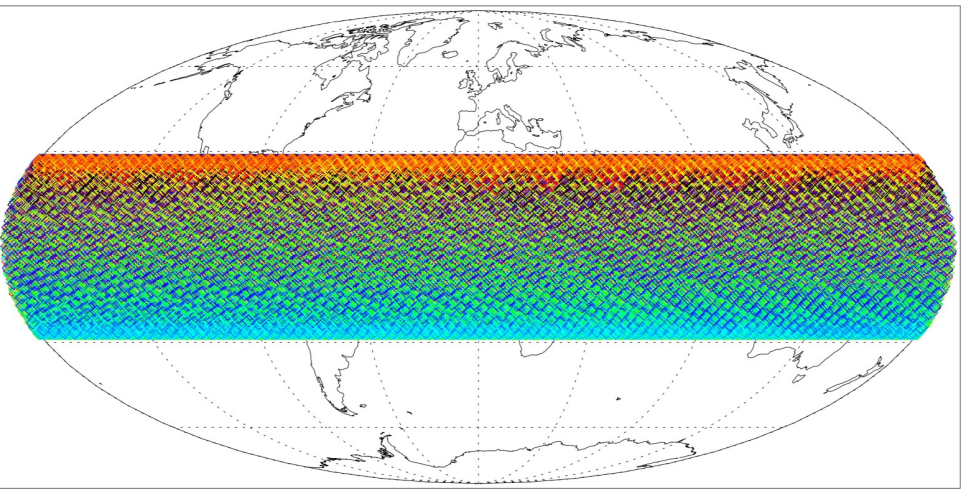
One Orbit



One Day



One Month

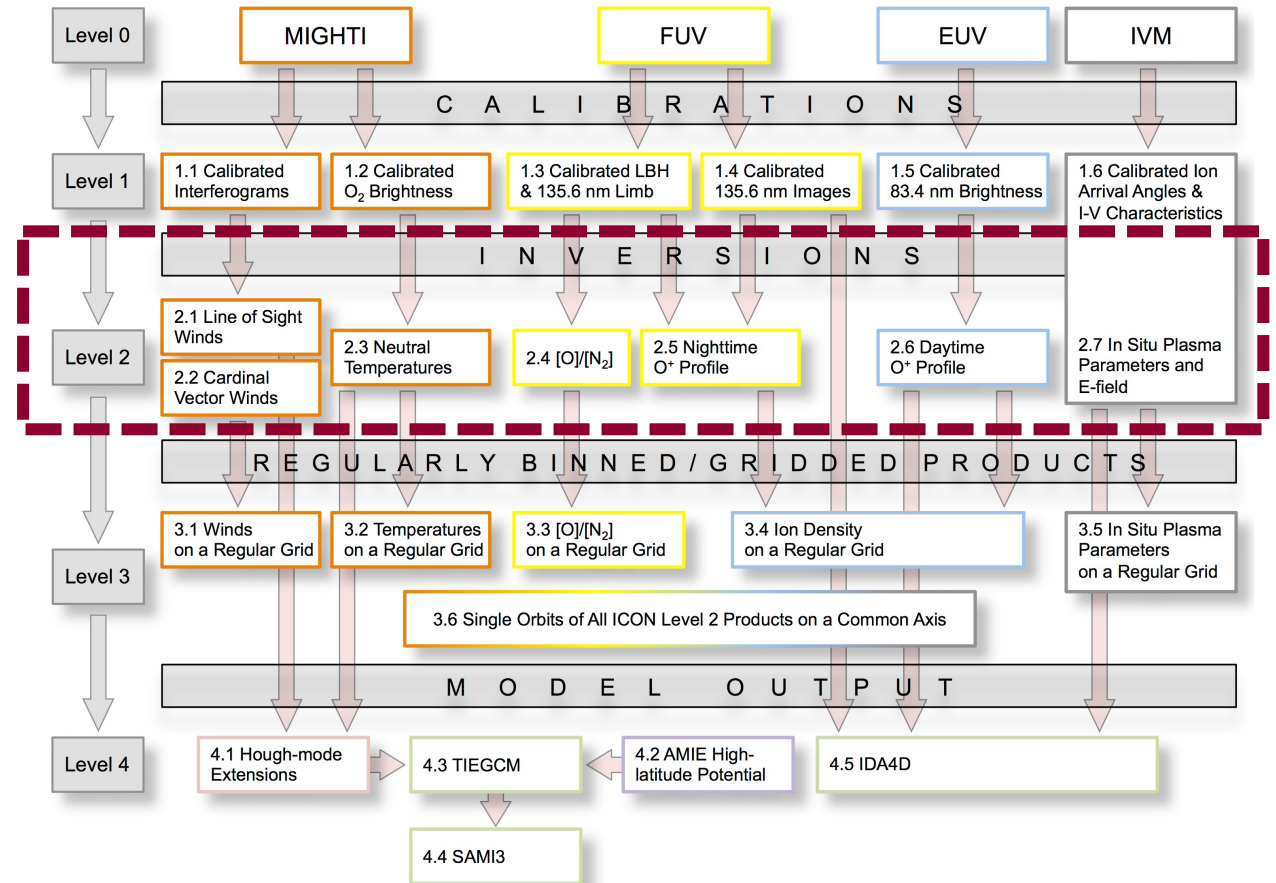


- 1/2 precession cycle ~27 days
- Close to solar rotation period, lunar orbit
- Avoid using this data for studying the lunar tide, examine solar rotation with caution

Data Products



- L2 products
 - L2.1 Line-of-Sight Winds
 - L2.2 Vector Winds
 - L2.3 Temperature
 - L2.4 O/N₂
 - L2.5 Nighttime O⁺, HmF2, NmF2
 - L2.6 Daytime O⁺, HmF2, NmF2
 - L2.7 Ionospheric Drifts, Density



Data Products – Files, Documentation



- All files are netCDF v4
- All L2 are 1 file/day
- Documentation:
 - SSR publications - algorithm focused:
<https://icon.ssl.berkeley.edu/Publications/Papers>
 - Pdfs – file content focused:
<https://icon.ssl.berkeley.edu/Data>

Variables

Variables in this file are listed below. First, "data" variables are described, followed by the "support_data" variables, and finally the "metadata" variables. The variables classified as "ignore_data" are not shown.

data

Variable Name	Description	Units	Dimensions
ICON_L24_disk_ON2	Retrieved disk column O/N2 Retrieved column O/N2 ratio on the disk	Dimens ionless	Epoch
ICON_L24_disk_sigma_ON2	Retrieved disk column O/N2 uncertainty Uncertainty in retrieved column O/N2 ratio on the disk, based on spread in reported uncertainty in input data	Dimens ionless	Epoch

support_data

Variable Name	Description	Units	Dimensions
Epoch	Milliseconds since 1970-01-01 00:00:00 UTC Time corresponding to the center of each observation, in milliseconds since Jan 1 1970.	millisec onds	Epoch

Data Products – Contents



Pay attention to Attributes :

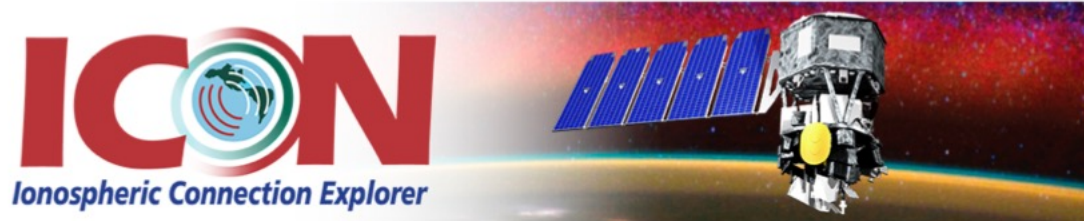
- Units
- Var_notes
- Fillvalues
- Quality flags

ANC	-> <Anonymous> STRUCT[1]
ATTRIBUTES	-> <Anonymous> STRUCT[1]
DIMENSIONS	-> DIMENSION STRUCT[4]
VARIABLES	-> <Anonymous> STRUCT[1]
EPOCH	-> <Anonymous> STRUCT[1]
ATTRIBUTES	-> <Anonymous> STRUCT[1]
CATDESC	-> <Anonymous> STRUCT[1]
DEPEND_0	-> <Anonymous> STRUCT[1]
DISPLAY_TYPE	-> <Anonymous> STRUCT[1]
FIELDNAM	-> <Anonymous> STRUCT[1]
FILLVAL	-> <Anonymous> STRUCT[1]
LONG_NAME	-> <Anonymous> STRUCT[1]
TIME_BASE	-> <Anonymous> STRUCT[1]
TIME_SCALE	-> <Anonymous> STRUCT[1]
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NAME	'Units'
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VALIDMAX	-> <Anonymous> STRUCT[1]
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VAR_NOTES	-> <Anonymous> STRUCT[1]
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VAR_TYPE	-> <Anonymous> STRUCT[1]
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NAME	'_FillValue'
VALUE	-999
DATA	LONG64[5812]

Rules of the Road



- https://icon.ssl.berkeley.edu/Portals/devIcon/Data/Rules_of_The_Road_ICON_v0.2.pdf?ver=2018-05-07-141215-957



Rules of the Road – Publication and Attribution of Results from ICON, the Ionospheric Connection Explorer Mission.

1. All ICON scientific data products will be made available to the public through the ICON website (<http://icon.ssl.berkeley.edu/>) upon the time that the data are validated, and the Space Physics Data Facility within 6 months of that time, as described in the ICON Science Data Management Plan.
2. All data released to the public may be utilized for scientific analysis and publication with no restrictions imposed by the ICON mission.
3. Users should consult with the PI and instrument leads to determine the appropriate use of instrument data and ICON-team-produced model results and to ensure that the Users are accessing the most recent versions of the data available and are aware of the nuances (e.g., accuracy and precision) of the datasets.

Rules of the Road



4. Where additional effort or analysis is required to allow the Users to proceed toward reportable scientific results, the ICON science team members who developed the data products should be offered co-authorship of the subsequent research report or paper.

5. Publication of results based upon ICON data should reference papers in the scientific literature by the ICON science team that describe the instrument functionality, data calibration/reduction processes, and retrieval algorithms used. It is not satisfactory to cite only the ICON website or SPDF as the source of the data. Version numbers of data sets, or an equivalent description of updates, should be referenced in publications as appropriate. Each data product file contains an acknowledgement attribute that provides the necessary references to the data product publications.

6. Researchers are encouraged to publish results in journals that provide free access to accepted articles.

7. When acknowledging support from ICON in a publication, please include the following statement:

ICON is supported by NASA's Explorers Program through contracts NNG12FA45C and NNG12FA42I.