ISCCP Distribution - Description of Basic and Full data

ISCCP data has traditionally been used by data savvy users. This document describes the work at NCEI to provide a form of ISCCP data -called ISCCP Basic data - that is designed to make the product more accessible and user friendly for users who desire basic cloud information. In addition, ISCCP H-Series Basic also bolsters the product's CF compliance. This document describes differences between ISCCP H-Series Basic and the ISCCP H-Series data products developed by the PI, Bill Rossow.

Dataset definitions

ISCCP data

These are the files produced by the ISCCP code delivered by Bill Rossow's group. They contain the complete set of variables and are archived as is.

ISCCP Basic data

These data are the more basic ISCCP cloud variables useful for displaying and comparing cloud data. This is designed for general cloud comparisons and analysis.

ISCCP File Modification for ISCCP-Basic

The following is a summary of the changes made to ISCCP files in order to better support basic use cases by large numbers of NCEI users. The idea is simple: the bulk of NCEI customers request simple cloud statistics. By supplying ISCCP Basic alongside the complete ISCCP files, we streamline support. Customers interested in the complete ISCCP dataset can access it, whereas customers interested in simple questions (“How cloudy was it last month?”, etc.) can use ISCCP Basic.

The following details 6 ways that ISCCP Basic data files differ from the original ISCCP data.

Spatial Remapping

The spatial remapping process follows ISCCP recommendations on how to remap from equal area to equal angle.

Original ISCCP files provide spatial data on equal area grids, where the number of cells in each latitude zone varies from 3 at the poles to 360 at the Equator (thus holding the area of each cell roughly constant). The use of equal area grid cells has its place in scientific use. For example, calculating global or zonal averages is simplified. Furthermore, it does save space since, for example, there are only 3 actual gridcells at the poles instead of 360.

However, it is not as widely used as the square grid, a.k.a. an equal angle lat/lon grid.

Therefore in ISCCP Basic, we have remapped spatial variables in ISCCP HGG, HGH and HGM to simple 360x180 rectangular grids that match the ISCCP 1 deg gridding. A benefit of using netCDF 4 is that the internal compression makes up for the space used by the increased number of gridcells.

Store actual values

This conversion of indices to actual values follows ISCCP recommendation on how the tables should be applied.

Original ISCCP files store variable values as byte indices. Thus, the geophysical value is determined by using the appropriate table and the index from the variable. For example, the variable ‘pc’ (cloud top pressure) is an index, where the actual pressure values are stored in the variable ‘pretab’. The actual pressure value, then, can be used (in a program) using something like “pretab(pc)”. This approach saved space by storing float values as bytes.

This is not currently supported by any standard convention. Also, there are other techniques that are widely used to save space.

Thus for ISCCP Basic, the geophysical values (e.g., pressure, temperature, etc) are stored in ISCCP Basic. CF standard techniques are used to compress the values (e.g., using variable attributes such as ‘add_offset’ and ‘scale_factors’). Furthermore, the NetCDF4 convention allows internal compression. In this way, the space lost in storing float data as 2-byte integers is not realized in the final files.

Variable reduction

The number of variables in the original ISCCP files is large: ISCCP HGG has 139 variables and HGH/HGM have 105 variables.

For users interested in basic cloud properties, that number is overwhelming.

To this end, the number of variables in ISCCP Basic is reduced. By keeping in mind that ISCCP is a satellite-based cloud climatology, we retained the primary cloud variables: cloud amount (or fraction) and cloud properties: temperature, pressure and distribution. Other variables (e.g., “Mean TAU for IR-marginally-cloudy pixels”, etc.) and ancillary variables are still available in the complete ISCCP dataset.

Furthermore, the list of variables stored in ISCCP Basic can be easily modified as we learn more about customer interests.

CF Convention Standard names

CF Standard names were added to numerous variables in order to more fully meet CF standards.

Changing grid cell pixel counts to fractions for HGG files

This process follows ISCCP recommendations on how cloud amount (or fraction) is calculated.

Some variables in the original ISCCP files required further modification to determine geophysical values. In order to remedy this, ISCCP Basic includes one significant variable modification where the values and variable type were changed. The following were changed from cloudy pixel counts to cloud amount percentage in ISCCP Basic HGG files:

- n_cloudy *[and renamed to cldamt]*
- n_ir_cloudy *[and renamed to cldamt_ir]*
- n_pcdist

- n_irtype *[and renamed to cldamt_irtypes]*
- n_pctaudist
- n_type *[and renamed to cldamt_types]*

In general, these variables originally stored the number of pixels found to be cloudy (depending on the variable). However, each of them needed to be evaluated in the context of how many pixels were present. Therefore, each of the above variables was divided by “n_total” (the total number of pixels in the gridcell) to determine the “fraction of pixels…”. In this way, this provides a geophysical value and more closely aligns with the CF standard name “isccp_cloud_area_fraction”. The long_name attributes of each of the above variables were correspondingly changed to reflect the new meaning. For instance, the long_name for n_pcdist was changed from "Number of IR cloudy pixels in each PC level" to “IR cloudy pixel fraction in each PC level".

To be clear, the variable “n_total” was left unchanged. Thus, the original values (pixel counts) can be easily determined by re-combining n_total and the fractional values.

HGG Variable name changes

There were 4 variables in HGG that were renamed to be consistent with HGH and HGM:

- N_cloudy - this was changed to ‘cldamt’ [after it was divided by n_total]. This represents the Cloud amount in the 1 deg grid box.
- N_ir_cloudy - this was changed to ‘cldamt_ir’ [likewise to n_cloudy]. It represents the pixels that are cloudy due only to IR cloud tests.
- N_type - This was changed to ‘cldamt_types’ (similar to above) and represents the percentage of clouds that are the 18 types of ISCCP cloud types.
- N_irtype - This was changed to ‘cldamt_irtypes’ (similar to above) and represents the percentage of clouds in the 3 IR layers.

ISCCP HGG

Summary

In its basic form, HGG data replaces the ISCCP D1 data. The data are 1 deg gridded snapshots (or instantaneous) available every 3 hours. There are numerous changes and improvements from the D1 data to HGG (which are described elsewhere).

Volume

These files are produced 3 hourly, with about 240 per month and 2920 per year.
The original HGG data produced about 3.8 GB per month or 45.6 GB per year.
The new ISCCP Basic data are roughly 803 MB per month or roughly 9.5 GB per year.

Table of Variables

Variable names in HGG Basic

Variable names not in HGG Basic (would need to access full HGG file)

Complete Table of Variables

The following is a summary of each variable in the complete ISCCP data as well as ISCCP Basic. There are about 4 ways each variable was treated:

A - Variable is stored in the same manner in both ISCCP Full and ISCCP Basic data.
B - Variable has been modified to be consistent with the new map projection.
C - Variable in ISCCP Basic is remapped and stored as geophysical values.
D - Variable in ISCCP Basic is remapped and converted from counts to area fraction.
E - Variable is not retained in ISCCP Basic for various reasons which can include

- 1 - Not retained since the new version is remapped.
- 2 - Not retained since values are stored as geophysical values.
- 3 - Not retained since data represent other cloud parameters.
- 4 - Not retained since data represent non-cloud parameters.
- 5 - Not retained since data represent ancillary data.

Full	Implementation for ISCCP - Basic
satcodes(satpos) ; satcodes:long_name = "Satellite code number"	A
satids(satpos, satid_len) ; satids:long_name = "Satellite short ID"	A
satnames(satpos, satname_len) ; satnames:long_name = "Satellite full name"	A
eqlon(eqcell) ; eqlon:long_name = "Center longitude of equal-area cell"	E1
eqlat(eqcell) ; eqlat:long_name = "Center latitude of equal-area cell"	E1
eqlon_index(eqcell) ; eqlon_index:long_name = "Longitude index of equal-area cell"	E1
eqlat_index(eqcell) ; eqlat_index:long_name = "Latitude index of equal-area cell"	E1
eqcells_in_zone(eqzone) ; eqcells_in_zone:long_name = "Number of longitude cells in each equal-area zone"	E1
eqarea(eqcell) ; eqarea:long_name = "Equal-area cell area"	E1
eqland(eqcell) ; eqland:long_name = "Equal-area cell land area"	E1
eqheight(eqcell) ; eqheight:long_name = "Equal-area cell mean topographic height"	E5

sigma_eqheight(eqcell) ; sigma_eqheight:long_name = "Equal-area cell topographic height standard deviation"	E5
eqveg(eqcell) ; eqveg:long_name = "Equal-area cell vegetation category"	E5
lon(lon) ; lon:long_name = "Center longitude of square grid cell"	B
lon_bounds(lon, edge) ;	B
lat(lat) ; lat:long_name = "Center latitude of square grid cell"	A
float lat_bounds(lat, edge) ;	A
sqlon_beg(eqcell) ; sqlon_beg:long_name = "Square grid beginning longitude index"	E1
sqlon_end(eqcell) ; sqlon_end:long_name = "Square grid ending longitude index"	E1
Everything above this line is DUPLICATE of HGH/HGM	
levpc(levpc) ; levpc:long_name = "Pressure levels"	A
pc_bounds(levpc, edge)	A
levtau(levtau) ; levtau:long_name = "Optical thickness levels"	A
tau_bounds(levtau, edge)	A

levtmp(levtmp) ; levtmp:long_name = "Temperature levels"	A
levrh(levrh) ; levrh:long_name = "Relative humidity levels"	A
cloud_irtype_label(cloud_irtype, label_len) ; cloud_irtype_label:long_name = "IR cloud type labels" cloud_irtype_label:description = "IR cloud types determined by cloud top pressure for blackbody clouds"	A
cloud_type_label(cloud_type, label_len) ; cloud_type_label:long_name = "Cloud type labels" cloud_type_label:description = "Cloud types determined by cloud top pressure adjusted for optically thinner clouds and optical thickness for liquid and ice clouds determined by cloud top temperature"	A
tmptab(count) ; tmptab:long_name = "Count to temperature conversion table"	E2
tmpvar(count) ; tmpvar:long_name = "Count to temperature variance conversion table"	E2
pretab(count) ; pretab:long_name = "Count to pressure conversion table"	E2
rfltab(count) ; rfltab:long_name = "Count to reflectance conversion table"	E2
tautab(count) ; tautab:long_name = "Count to optical thickness conversion table"	E2
ozntab(count) ; ozntab:long_name = "Count to ozone conversion table"	E2
humtab(count) ; humtab:long_name = "Count to relative humidity conversion table"	E2

wpatab(count) ; wpatab:long_name = "Count to water path conversion table"	E2
time ; time:long_name = "Time"	A
satcode(eqcell) ; satcode:long_name = "Satellite code number"	A
cell_origin(eqcell) ; cell_origin:long_name = "Cell origin code"	A
fill_gmts(eqcell) ; fill_gmts:long_name = "Number of missing GMTs in gap"	A
fill_days(eqcell) ; fill_days:long_name = "Number of missing days in gap"	A
fill_weeks(eqcell) ; fill_weeks:long_name = "Number of missing weeks in gap"	A
fill_type(eqcell) ; fill_type:long_name = "Fill type code"	A
scene(eqcell) ; scene:long_name = "Scene identification"	C
snoice(eqcell) ; snoice:long_name = "Snow/ice cover"	C
inversion(eqcell) ; inversion:long_name = "Inversion occurrance"	E2
mue(eqcell) ; mue:long_name = "Cosine of satellite angle"	E2

mu0(eqcell) ; mu0:long_name = "Cosine of solar zenith angle"	E2
phi(eqcell) ; phi:long_name = "Relative azimuth angle"	E2
n_total(eqcell) ; n_total:long_name = "Total number of pixels"	C
n_cloudy(eqcell) ; n_cloudy:long_name = "Number of cloudy pixels" description = "Cloud detected by either IR or VIS thresholds (IR at night but diurnally corrected), amount determined by ratio with total number of pixels	D
n_ir_cloudy(eqcell) ; n_ir_cloudy:long_name = "Number of IR-cloudy pixels" description = "Cloud detected by IR threshold regardless of VIS threshold"	D
n_ironly_cloudy(eqcell) ; n_ironly_cloudy:long_name = "Number of IR-only-cloudy pixels" description = "Cloud detected by IR threshold but not VIS threshold"	E3
n_visonly_cloudy(eqcell) ; n_visonly_cloudy:long_name = "Number of VIS-only-cloudy pixels" description = "Cloud detected by VIS threshold but not IR threshold"	E3
n_visirmarg_cloudy(eqcell) ; n_visirmarg_cloudy:long_name = "Number of VIS/IR-marginally-cloudy pixels" :description = "Marginal cloud detection by either IR or VIS thresholds"	E3
n_irmarg_cloudy(eqcell) ; n_irmarg_cloudy:long_name = "Number of IR-marginally-cloudy pixels" description = "Marginal cloud detection by IR threshold regardless of VIS threshold"	E3
n_vismarg_cloudy(eqcell) ;	E3

n_vismarg_cloudy:long_name = "Number of VIS-marginally-cloudy pixels" description = "Marginal cloud detection by VIS threshold regardless of IR threshold"	
n_ir_longterm(eqcell) ; n_ir_longterm:long_name = "Number of pixels with IR long term statistics (8<ICSLOG<17)"	E3
ratio_ir_clear(eqcell) ; ratio_ir_clear:long_name = "Ratio of IR-clear pixels colder than clrsky to number warmer than clrsky (ITHR=3 / ITHR=1,2)"	E3
ratio_vis_clear(eqcell) ; ratio_vis_clear:long_name = "Ratio of VIS-clear pixels brighter than clrsky to number darker than clrsky (VTHR=3 / VTHR=1,2)"	E3
n_pcdist(levpc, eqcell) ; n_pcdist:long_name = "Number of IR cloudy pixels in each PC level" description = "Cloud detected by IR threshold regardless of VIS threshold, cloud top located assuming blackbody"	D
n_irtype(cloud_irtype, eqcell) ; n_irtype:long_name = "Number of IR cloudy pixels for IR cloud types" description = "Cloud detected by IR threshold regardless of VIS threshold, IR type determined by cloud top pressure for blackbody"	D
n_pctaudist(levtau, levpc, eqcell) ; n_pctaudist:long_name = "Number of cloudy pixels in each PC/TAU level" description = "Cloud detected by either IR or VIS threshold, cloud top location adjusted for optically thinner clouds"	D
n_type(cloud_type, eqcell) ; n_type:long_name = "Number of cloudy pixels for cloud types" description = "Cloud detected by either IR or VIS threshold, type determined by cloud top location adjusted for optically thinner clouds and optical thickness for liquid or ice as determined by cloud top	D

temperature"	
pc(eqcell) ; pc:long_name = "Mean PC for cloudy pixels" description = "Grid cell average of cloud top pressure with VIS-adjusted location during daytime and nighttime location diurnally corrected"	C
pc_ir(eqcell) ; pc_ir:long_name = "Mean PC for IR-cloudy pixels" description = "Grid cell average of cloud top pressures for clouds detected by IR threshold regardless of VIS threshold, no VIS-adjustment of location"	C
pc_ironly(eqcell) ; pc_ironly:long_name = "Mean PC for IR-only-cloudy pixels" description = "Grid cell average of cloud top pressures for clouds detected by IR threshold but not VIS threshold, with VIS-adjusted location"	E3
pc_visonly(eqcell) ; pc_visonly:long_name = "Mean PC for VIS-only-cloudy pixels" description = "Grid cell average of cloud top pressures for clouds detected by VIS threshold but not IR threshold, with VIS-adjusted location"	E3
pc_irmarg(eqcell) ; pc_irmarg:long_name = "Mean PC for IR-marginally-cloudy pixels" description = "Grid cell average of cloud top pressures for marginal IR detections regardless of VIS, no VIS-adjustment of location"	E3
pc_vismarg(eqcell) ; pc_vismarg:long_name = "Mean PC for VIS-marginally-cloudy pixels" description = "Grid cell average of cloud top pressures for marginal VIS detections regardless of IR, with VIS-adjusted location"	E3
pc_visirmarg(eqcell) ; pc_visirmarg:long_name = "Mean PC for VIS/IR-marginally-cloudy pixels"	E3

description = "Grid cell average of cloud top pressures for marginal detection by either VIS or IR, with VIS-adjusted location"	
sigma_pc_ir(eqcell) ; sigma_pc_ir:long_name = "Sigma-PC for IR-cloudy pixels" description = "Grid cell spatial standard deviation of cloud top pressure for clouds detected by IR threshold regardless of VIS threshold, no VIS-adjustment of location"	C
tc(eqcell) ; tc:long_name = "Mean TC for cloudy pixels" description = "Grid cell average of cloud top temperature with VIS-adjusted location during daytime and nighttime location diurnally corrected"	C
tc_ir(eqcell) ; tc_ir:long_name = "Mean TC for IR-cloudy pixels" description = "Grid cell average of cloud top temperatures for clouds detected by IR threshold regardless of VIS threshold, no VIS-adjustment of location"	C
tc_ironly(eqcell) ; tc_ironly:long_name = "Mean TC for IR-only-cloudy pixels" description = "Grid cell average of cloud top temperatures for clouds detected by IR threshold but not VIS threshold, with VIS-adjusted location"	E3
tc_visonly(eqcell) ; tc_visonly:long_name = "Mean TC for VIS-only-cloudy pixels" description = "Grid cell average of cloud top temperatures for clouds detected by VIS threshold but not IR threshold, with VIS-adjusted location"	E3
tc_irmarg(eqcell) ; tc_irmarg:long_name = "Mean TC for IR-marginally-cloudy pixels" description = "Grid cell average of cloud top temperatures for marginal IR detections regardless of VIS, no VIS-adjustment of location"	E3
tc_vismarg(eqcell) ;	E3

tc_vismarg:long_name = "Mean TC for VIS-marginally-cloudy pixels" description = "Grid cell average of cloud top temperatures for marginal VIS detections regardless of IR, with VIS-adjusted location"	
tc_visirmarg(eqcell) ; tc_visirmarg:long_name = "Mean TC for VIS/IR-marginally-cloudy pixels" description = "Grid cell average of cloud top temperatures for marginal detection by either VIS or IR, with VIS-adjusted location"	E3
sigma_tc_ir(eqcell) ; sigma_tc_ir:long_name = "Sigma-TC for IR-cloudy pixels" description = "Grid cell spatial standard deviation of cloud top temperature for clouds detected by IR threshold regardless of VIS threshold, no VIS-adjustment of location”	C
tau(eqcell) ; tau:long_name = "Mean TAU for cloudy pixels" escription = "Grid cell (radiatively-weighted) average of cloud visible optical thickness during daytime and diurnally interpolated values during nighttime, liquid and ice clouds combined"	C
tau_ir(eqcell) ; tau_ir:long_name = "Mean TAU for IR-cloudy pixels" description = "Grid cell (radiatively-weighted) average of visible optical thickness for clouds detected by IR threshold regardless of VIS threshold, liquid and ice clouds combined	C
tau_ironly(eqcell) ; tau_ironly:long_name = "Mean TAU for IR-only-cloudy pixels" :description = "Grid cell (radiatively-weighted) average of visible optical thickness for clouds detected by IR threshold but not VIS threshold, liquid and ice clouds combined"	E3
tau_visonly(eqcell) ; tau_visonly:long_name = "Mean TAU for VIS-only-cloudy pixels" description = "Grid cell (radiatively-weighted) average of visible optical thickness for clouds detected by VIS threshold but not IR threshold, liquid and ice clouds combined"	E3

tau_irmarg(eqcell) ; tau_irmarg:long_name = "Mean TAU for IR-marginally-cloudy pixels" description = "Grid cell (radiatively-weighted) average of visible optical thickness for marginal IR detections regardless of VIS, liquid and ice clouds combined"	E3
tau_vismarg(eqcell) ; tau_vismarg:long_name = "Mean TAU for VIS-marginally-cloudy pixels" description = "Grid cell (radiatively-weighted) average of visible optical thickness for marginal VIS detections regardless of IR, liquid and ice clouds combined"	E3
tau_visirmarg(eqcell) ; tau_visirmarg:long_name = "Mean TAU for VIS/IR-marginally-cloudy pixels" description = "Grid cell (radiatively-weighted) average of visible optical thickness for marginal detection by either VIS or IR, liquid and ice clouds combined"	E3
sigma_tau_ir(eqcell) ; sigma_tau_ir:long_name = "Sigma-TAU for IR-cloudy pixels" description = "Grid cell spatial standard deviation of visible optical thickness for clouds detected by IR threshold regardless of VIS threshold, liquid and ice clouds combined"	C
wp(eqcell) ; wp:long_name = "Mean WP for cloudy pixels" description = "Grid cell average of cloud water path (linear average of optical thickness times particle radius) during daytime and diurnally interpolated values during nighttime, , liquid and ice clouds combined"	C
wp_ir(eqcell) ; wp_ir:long_name = "Mean WP for IR-cloudy pixels" description = "Grid cell average of cloud water path (linear average of optical thickness times particle radius) for clouds detected by IR threshold regardless of VIS threshold, liquid and ice clouds combined"	C
wp_ironly(eqcell) ; wp_ironly:long_name = "Mean WP for IR-only-cloudy pixels" description = "Grid cell average of cloud water path (linear average of optical thickness times particle	E3

radius) for clouds detected by IR threshold but not VIS threshold, liquid and ice clouds combined"	
wp_visonly(eqcell) ; wp_visonly:long_name = "Mean WP for VIS-only-cloudy pixels" description = "Grid cell average of cloud water path (linear average of optical thickness times particle radius) for clouds detected by VIS threshold but not IR threshold, liquid and ice clouds combined"	E3
wp_irmarg(eqcell) ; wp_irmarg:long_name = "Mean WP for IR-marginally-cloudy pixels" description = "Grid cell average of cloud water path (linear average of optical thickness times particle radius) for marginal IR detections regardless of VIS, liquid ...	E3
wp_vismarg(eqcell) ; wp_vismarg:long_name = "Mean WP for VIS-marginally-cloudy pixels" description = "Grid cell average of cloud water path (linear average of optical thickness times particle radius) for marginal VIS detections regardless of IR, ...	E3
wp_visirmarg(eqcell) ; wp_visirmarg:long_name = "Mean WP for VIS/IR-marginally-cloudy pixels" description = "Grid cell average of cloud water path (linear average of optical thickness times particle radius) for marginal detection by either VIS or IR, ...	E3
sigma_wp_ir(eqcell) ; sigma_wp_ir:long_name = "Sigma-WP for IR-cloudy pixels" description = "Grid cell spatial standard deviation of cloud water path for clouds detected by IR threshold regardless of VIS threshold, liquid and ice clouds ...	C
pc_pcdist(levpc, eqcell) ; pc_pcdist:long_name = "PC means for IR PC distribution levels" description = "Grid cell average cloud top pressures in seven pressure intervals for clouds detected by IR threshold regardless of VIS threshold, no VIS-adjustment ...	C
tc_pcdist(levpc, eqcell) ; tc_pcdist:long_name = "TC means for IR PC distribution levels"	C

description = "Grid cell average cloud top temperatures in seven pressure intervals for cloud detected by IR threshold regardless of VIS threshold, no VIS-adjustment ...	
pc_type(cloud_type, eqcell) ; pc_type:long_name = "PC means for cloud types" description = "Grid cell average of liquid or ice cloud top pressures in three pressure intervals and three optical thickness intervals for clouds detected by either ...	C
tc_type(cloud_type, eqcell) ; tc_type:long_name = "TC means for cloud types" description = "Grid cell average of liquid or ice cloud top temperatures in three pressure intervals and three optical thickness intervals for clouds detected by ...	C
tau_type(cloud_type, eqcell) ; tau_type:long_name = "TAU means for cloud types" description = "Grid cell average of liquid or ice cloud visible optical thicknesses in three pressure intervals and three optical thickness intervals for clouds ...	C
wp_type(cloud_type, eqcell) ; wp_type:long_name = "WP means for cloud types" description = "Grid cell average of liquid or ice cloud water path (linear average of optical thickness times particle radius) in three pressure intervals and three ...	C
ts_clrsky(eqcell) ; ts_clrsky:long_name = "Mean TS from clear sky composite" description = "Grid cell average surface skin temperature based on cloud detection procedure and using actual surface emissivity, less cloud-contaminated than ts”	E4
ts(eqcell) ; ts:long_name = "Mean TS for clear pixels" description = "Grid cell average surface skin temperature for clear pixels detected by both IR and VIS (IR at night) thresholds and using actual surface emissivity, more...	E4
ts_ir(eqcell) ;	E4

ts_ir:long_name = "Mean TS for IR-clear pixels" description = "Grid cell average surface skin temperature for clear pixels detected by IR threshold regardless of VIS threshold and using actual surface emissivity"	
ts_vis(eqcell) ; ts_vis:long_name = "Mean TS for VIS-clear pixels" description = "Grid cell average surface skin temperature for clear pixels detected by VIS threshold regardless of IR threshold and using actual surface emissivity"	E4
sigma_ts_ir(eqcell) ; sigma_ts_ir:long_name = "Sigma-TS for IR-clear pixels" description = "Grid cell spatial standard deviation of TS for clear pixels detected by IR threshold regardless of VIS threshold and using actual surface emissivity ...	E4
rs_clrsky(eqcell) ; rs_clrsky:long_name = "Mean RS from clear sky composite" description = "Grid cell average visible surface reflectance during daytime and diurnally interpolated values during nighttime based on cloud detection procedure ...	E4
rs(eqcell) ; rs:long_name = "Mean RS for clear pixels" description = "Grid cell average visible surface reflectance for clear pixels detected by both IR and VIS (day only) thresholds and aerosol corrected, more cloud-...	E4
rs_ir(eqcell) ; rs_ir:long_name = "Mean RS for IR-clear pixels" description = "Grid cell average visible surface reflectance for clear pixels detected by IR threshold regardless of VIS threshold and aerosol corrected"	E4
rs_vis(eqcell) ; rs_vis:long_name = "Mean RS for VIS-clear pixels" description = "Grid cell average visible surface reflectance for clear pixels detected by VIS threshold regardless of IR threshold and aerosol corrected"	E4

sigma_rs_ir(eqcell) ; sigma_rs_ir:long_name = "Sigma-RS for IR-clear pixels" description = "Grid cell spatial standard deviation of RS for clear pixels detected by IR threshold regardless of VIS threshold and aerosol corrected"	E4
ir_ircloudy(eqcell) ; ir_ircloudy:long_name = "Mean IR brightness temperature for IR-cloudy pixels" description = "Grid cell average calibrated IR brightness temperature for cloudy pixels detected by IR threshold regardless of VIS threshold"	E3
sigma_ir_ircloudy(eqcell) ; sigma_ir_ircloudy:long_name = "Sigma-IR brightness temperature for IR-cloudy pixels" description = "Grid cell spatial standard deviation of calibrated IR brightness temperature for cloudy pixels detected by IR threshold regardless of VIS ...	E3
ir_viscloudy(eqcell) ; ir_viscloudy:long_name = "Mean IR brightness temperature for VIS-cloudy pixels" description = "Grid cell average calibrated IR brightness temperature for cloudy pixels detected by VIS threshold regardless of IR threshold"	E3
ir_visircloudy(eqcell) ; ir_visircloudy:long_name = "Mean IR brightness temperature for VIS/IR-cloudy pixels" description = "Grid cell average calibrated IR brightness temperature for cloudy pixels detected by either IR threshold or VIS threshold"	E3
ir_irclear(eqcell) ; ir_irclear:long_name = "Mean IR brightness temperature for IR-clear pixels" description = "Grid cell average calibrated IR brightness temperature for clear pixels detected by IR threshold regardless of VIS threshold"	E3
sigma_ir_irclear(eqcell) ; sigma_ir_irclear:long_name = "Sigma-IR brightness temperature for IR-clear pixels" description = "Grid cell spatial standard deviation of calibrated IR brightness temperature for clear pixels detected by IR threshold regardless of VIS thresh...	E3

ir_visclear(eqcell) ; ir_visclear:long_name = "Mean IR brightness temperature for VIS-clear pixels" description = "Grid cell average calibrated IR brightness temperature for clear pixels detected by VIS threshold regardless of IR threshold"	E3
ir_visirclear(eqcell) ; ir_visirclear:long_name = "Mean IR brightness temperature for VIS/IR-clear pixels" description = "Grid cell average calibrated IR brightness temperature for clear pixels detected by IR threshold and VIS threshold"	E3
ir_clrsky(eqcell) ; ir_clrsky:long_name = "Mean IR brightness temperature from clear sky composite" description = "Grid cell average calibrated IR brightness temperature based on cloud detection procedure"	E4
vis_visircloudy(eqcell) ; vis_visircloudy:long_name = "Mean VIS scaled radiance for VIS/IR-cloudy pixels" description = "Grid cell average calibrated VIS scaled radiance for cloudy pixels detected by either IR or VIS threshold"	E3
sigma_vis_visircloudy(eqcell) ; sigma_vis_visircloudy:long_name = "Sigma-VIS scaled radiance for VIS/IR-cloudy pixels" description = "Grid cell spatial standard deviation of calibrated VIS scaled radiance for cloudy pixels detected by either IR or VIS threshold"	E3
vis_ircloudy(eqcell) ; vis_ircloudy:long_name = "Mean VIS scaled radiance for IR-cloudy pixels" description = "Grid cell average calibrated VIS scaled radiance for cloudy pixels detected by IR threshold regardless of VIS threshold"	E3
vis_viscloudy(eqcell) ; vis_viscloudy:long_name = "Mean VIS scaled radiance for VIS-cloudy pixels" description = "Grid cell average calibrated VIS scaled radiance for cloudy pixels detected by VIS threshold regardless of IR threshold"	E3

vis_visirclear(eqcell) ; vis_visirclear:long_name = "Mean VIS scaled radiance for VIS/IR-clear pixels" description = "Grid cell average calibrated VIS scaled radiance for clear pixels detected by IR and VIS thresholds"	E4
sigma_vis_visirclear(eqcell) ; sigma_vis_visirclear:long_name = "Sigma-VIS scaled radiance for VIS/IR-clear pixels" description = "Grid cell spatial standard deviation of calibrated VIS scaled radiance for clear pixels detected by IR and VIS thresholds"	E4
vis_irclear(eqcell) ; vis_irclear:long_name = "Mean VIS scaled radiance for IR-clear pixels" description = "Grid cell average calibrated VIS scaled radiance for clear pixels detected by IR threshold regardless of VIS threshold"	E4
vis_visclear(eqcell) ; vis_visclear:long_name = "Mean VIS scaled radiance for VIS-clear pixels" description = "Grid cell average calibrated VIS scaled radiance for clear pixels detected by VIS threshold regardless of IR threshold"	E4
vis_clrsky(eqcell) ; vis_clrsky:long_name = "Mean VIS scaled radiance from clear sky composite" description = "Grid cell average calibrated VIS scaled radiance based on cloud detection procedure"	E4
origin_nnhirs(eqcell) ; origin_nnhirs:long_name = "Origin code for NNHIRS" description = "Atmospheric information from nnHIRS (infrared sounder) and Ozone ancillary products"	E5
airtemp(eqcell) ; airtemp:long_name = "Near-surface air temperature (2 meters)"	E5
temp_profile(levtmp, eqcell) ; temp_profile:long_name = "Atmospheric temperature profile"	E5
tmax(eqcell) ;	E5

tmax:long_name = "Maximum temperature" description = "Not surface air temperature when surface inversion is present"	
ttrop(eqcell) ; ttrop:long_name = "Tropopause temperature"	E5
psurf(eqcell) ; psurf:long_name = "Surface pressure"	E5
pmaxt(eqcell) ; pmaxt:long_name = "Pressure at max temperature" description = "Not surface pressure when surface inversion is present"	E5
ptrop(eqcell) ; ptrop:long_name = "Pressure at tropopause"	E5
rh_nearsurf(eqcell) ; rh_nearsurf:long_name = "Near-surface relative humidity"	E5
rh_profile(levrh, eqcell) ; rh_profile:long_name = "Relative humidity profile"	E5
rhmaxt(eqcell) ; rhmaxt:long_name = "Relative humidity at max temperature"	E5
rhtrop(eqcell) ; rhtrop:long_name = "Relative humidity at tropopause"	E5
ozone(eqcell) ; ozone:long_name = "Ozone abundance"	E5

Monthly ISCCP - HGH/HGM

Summary

In its basic form, HGH and HGM are replacements of ISCCP D2. They represent monthly accumulations of the HGG files. The HGH data are the diurnal averages of the individual ISCCP timeslots, thus there are 8 per month (for the 8 ISCCP observation times). There is then 1 HGM file per month that represents the monthly mean state.

Volume

Because there are significantly fewer files than HGG, the overall volume has been reduced for HGH/HGM.
The volume of 1 month of original HGH/HGM data is ~100 MB. Thus 30 years of original ISCCP monthly data are 35 GB.
The volume of 1 month ISCCP Basic monthly data is 40 MB. Thus 30 years of ISCCP Basic monthly data are 14 GB.

Table of Variables

The following is a summary of each variable in the complete ISCCP data as well as ISCCP Basic. There are about 4 ways each variable was treated:

A - Variable is stored in the same manner in both ISCCP Full and ISCCP Basic data.
B - Variable has been modified to be consistent with the new map projection.
C - Variable in ISCCP Basic is remapped and stored as geophysical values.
D - Variable in ISCCP Basic is remapped and converted from counts to area fraction.
E - Variable is not retained in ISCCP Basic for various reasons which can include

1 - Not retained since the new version is remapped.
2 - Not retained since values are stored as geophysical values.
3 - Not retained since data represent other cloud parameters.
4 - Not retained since data represent non-cloud parameters.
5 - Not retained since data represent ancillary data.

Full	Implementation for ISCCP - Basic
satcodes(satpos) ; satcodes:long_name = "Satellite code number"	A

satids(satpos, satid_len) ; satids:long_name = "Satellite short ID"	A
satnames(satpos, satname_len) ; satnames:long_name = "Satellite full name"	A
eqlon(eqcell) ; eqlon:long_name = "Center longitude of equal-area cell"	E1
eqlat(eqcell) ; eqlat:long_name = "Center latitude of equal-area cell"	E1
eqlon_index(eqcell) ; eqlon_index:long_name = "Longitude index of equal-area cell"	E1
eqlat_index(eqcell) ; eqlat_index:long_name = "Latitude index of equal-area cell"	E1
eqcells_in_zone(eqzone) ; eqcells_in_zone:long_name = "Number of longitude cells in each equal-area zone"	E1
eqarea(eqcell) ; eqarea:long_name = "Equal-area cell area"	E1
eqland(eqcell) ; eqland:long_name = "Equal-area cell land area"	E1
eqheight(eqcell) ; eqheight:long_name = "Equal-area cell mean topographic height"	E5
sigma_eqheight(eqcell) ; sigma_eqheight:long_name = "Equal-area cell topographic height standard deviation"	E5
eqveg(eqcell) ; eqveg:long_name = "Equal-area cell vegetation category"	E5

lon(lon) ; lon:long_name = "Center longitude of square grid cell"	B
lon_bounds(lon, edge) ;	B
lat(lat) ; lat:long_name = "Center latitude of square grid cell"	A
float lat_bounds(lat, edge) ;	A
sqlon_beg(eqcell) ; sqlon_beg:long_name = "Square grid beginning longitude index"	E1
sqlon_end(eqcell) ; sqlon_end:long_name = "Square grid ending longitude index"	E1
cldbin(cldbin) ; cldbin:long_name = "Cloud amount frequency bin center"	A
cldbin_bounds(cldbin, edge)	A
levtmp(levtmp) ; levtmp:long_name = "Temperature levels"	E2
levrh(levrh) ; levrh:long_name = "Relative humidity levels"	E2
cloud_irtype_label(cloud_irtype, label_len) ; cloud_irtype_label:long_name = "Cloud type label"	A
cloud_type_label(cloud_type, label_len) ; cloud_type_label:long_name = "Cloud type label"	A
tmptab(count) ; tmptab:long_name = "Count to temperature conversion table"	E2

tmpvar(count) ; tmpvar:long_name = "Count to temperature variance conversion table"	E2
pretab(count) ; pretab:long_name = "Count to pressure conversion table"	E2
rfltab(count) ; rfltab:long_name = "Count to reflectance conversion table"	E2
tautab(count) ; tautab:long_name = "Count to optical thickness conversion table"	E2
ozntab(count) ; ozntab:long_name = "Count to ozone conversion table"	E2
humtab(count) ; humtab:long_name = "Count to relative humidity conversion table"	E2
wpatab(count) ; wpatab:long_name = "Count to water path conversion table"	E2
scene(eqcell) ; scene:long_name = "Scene identification"	A
n_obs(eqcell) ; n_obs:long_name = "Number of observations"	A
n_day(eqcell) ; n_day:long_name = "Number of day-time observations"	A
n_orig(eqcell) ; n_orig:long_name = "Number of original data cells"	A
n_toplev(eqcell) ; n_toplev:long_name = "Number of satellite hierarchy top-level data cells"	A

cldamt(eqcell) ; cldamt:long_name = "Mean cloud amount"	C
cldamt_dist(cldbin, eqcell) ; cldamt_dist:long_name = "Mean hourly frequency of occurance of mean cloud amount" description = "Average frequency of occurrence of monthly mean cloud amount at each time of day UTC"	C
pc(eqcell) ; pc:long_name = "Mean cloud pressure"	C
sigma_pc_time(eqcell) ; sigma_pc_time:long_name = "PC mean standard deviation over time" description = "Standard deviation of time variations of grid cell average cloud top pressure"	C
tc(eqcell) ; tc:long_name = "Mean cloud temperature"	C
sigma_tc_time(eqcell) ; sigma_tc_time:long_name = "TC mean standard deviation over time" description = "Standard deviation of time variations of grid cell average cloud top temperature"	C
tau(eqcell) ; tau:long_name = "Mean cloud TAU" description = "Radiatively-weighted average cloud visible optical thickness, liquid and ice clouds combined"	C
sigma_tau_time(eqcell) ; sigma_tau_time:long_name = "TAU mean standard deviation over time" description = "Standard deviation of time variations of grid cell average cloud visible optical thickness, liquid and ice clouds combined"	C
wp(eqcell) ; wp:long_name = "Mean cloud water path" ; description = "Water path given by linear average of cloud optical thickness times particle radius, liquid	C

and ice clouds combined"	
sigma_wp_time(eqcell) ; sigma_wp_time:long_name = "WP mean standard deviation over time" ; description = "Standard deviation of time variations of grid cell average cloud water path, liquid and ice clouds combined"	C
cldamt_ir(eqcell) ; cldamt_ir:long_name = "Mean IR-cloud amount" ; description = "Average cloud amount detected by IR threshold regardless of VIS threshold"	C
pc_ir(eqcell) ; pc_ir:long_name = "Mean IR-cloud pressure" ; description = "Average cloud top pressure for clouds detected by IR threshold regardless of VIS threshold"	C
sigma_pc_space(eqcell) ; sigma_pc_space:long_name = "PC IR-cloud mean standard deviation over space" ; description = "Time average of spatial standard deviations of cloud top pressure"	C
tc_ir(eqcell) ; tc_ir:long_name = "Mean IR-cloud temperature" ; description = "Average cloud top temperature for clouds detected by IR threshold regardless of VIS threshold"	C
sigma_tc_space(eqcell) ; sigma_tc_space:long_name = "TC IR-cloud mean standard deviation over space" ; description = "Time average of spatial standard deviations of cloud top temperature"	C
tau_ir(eqcell) ; tau_ir:long_name = "Mean IR-cloud TAU" ; description = "Average (radiatively-weighted) cloud visible optical thickness for clouds detected by IR threshold regardless of VIS threshold"	C
sigma_tau_space(eqcell) ;	C

sigma_tau_space:long_name = "TAU IR-cloud mean standard deviation over space" ; description = "Time average of spatial standard deviations of cloud visible optical thickness"	
wp_ir(eqcell) ; wp_ir:long_name = "Mean IR-cloud water path" ; description = "Average cloud water path (linear average of optical thickness times particle radius) for clouds detected by IR threshold regardless of VIS threshold"	C
sigma_wp_space(eqcell) ; sigma_wp_space:long_name = "WP IR-cloud mean standard deviation over space" ; description = "Time average of spatial standard deviations of cloud water path"	C
cldamt_ironly(eqcell) ; cldamt_ironly:long_name = "Mean IR-only-cloud amount" ; description = "Average cloud amount for clouds detected by IR threshold but not VIS threshold"	E3
pc_ironly(eqcell) ; pc_ironly:long_name = "Mean IR-only-cloud pressure" ; description = "Average cloud top pressure for clouds detected by IR threshold but not VIS threshold"	E3
tc_ironly(eqcell) ; tc_ironly:long_name = "Mean IR-only-cloud temperature" ; description = "Average cloud top temperature for clouds detected by IR threshold but not VIS threshold"	E3
tau_ironly(eqcell) ; tau_ironly:long_name = "Mean IR-only-cloud TAU" ; description = "Average cloud visible optical thickness for clouds detected by IR threshold but not VIS threshold"	E3
wp_ironly(eqcell) ; wp_ironly:long_name = "Mean IR-only-cloud water path" ; description = "Average cloud water path for clouds detected by IR threshold but not VIS threshold"	E3
cldamt_visonly(eqcell) ; cldamt_visonly:long_name = "Mean VIS-only-cloud amount" ;	E3

description = "Average cloud amount for clouds detected by VIS threshold but not IR threshold"	
pc_visonly(eqcell) ; pc_visonly:long_name = "Mean VIS-only-cloud pressure" ; description = "Average cloud top pressure for clouds detected by VIS threshold but not IR threshold"	E3
tc_visonly(eqcell) ; tc_visonly:long_name = "Mean VIS-only-cloud temperature" ; description = "Average cloud top temperature for clouds detected by VIS threshold but not IR threshold"	E3
tau_visonly(eqcell) ; tau_visonly:long_name = "Mean VIS-only-cloud TAU" ; description = "Average cloud visible optical thickness for clouds detected by VIS threshold but not IR threshold"	E3
wp_visonly(eqcell) ; wp_visonly:long_name = "Mean VIS-only-cloud water path" ; description = "Average cloud water path for clouds detected by VIS threshold but not IR threshold"	E3
cldamt_irmarg(eqcell) ; cldamt_irmarg:long_name = "Mean IR-marginal-cloud amount" ; description = "Average cloud amount for clouds marginally detected by IR threshold regardless of VIS threshold"	E3
pc_irmarg(eqcell) ; pc_irmarg:long_name = "Mean IR-marginal-cloud pressure" ; description = "Average cloud top pressure for clouds marginally detected by IR threshold regardless of VIS threshold"	E3
tc_irmarg(eqcell) ; tc_irmarg:long_name = "Mean IR-marginal-cloud temperature" ; description = "Average cloud top temperature for clouds marginally detected by IR threshold regardless of VIS threshold"	E3
tau_irmarg(eqcell) ;	E3

tau_irmarg:long_name = "Mean IR-marginal-cloud TAU" ; description = "Average cloud visible optical thickness for clouds marginally detected by IR threshold regardless of VIS threshold"	
wp_irmarg(eqcell) ; wp_irmarg:long_name = "Mean IR-marginal-cloud water path" ; description = "Average cloud water path for clouds marginally detected by IR threshold regardless of VIS threshold"	E3
cldamt_vismarg(eqcell) ; cldamt_vismarg:long_name = "Mean VIS-marginal-cloud amount" ; description = "Average cloud amount for clouds marginally detected by VIS threshold regardless of IR threshold"	E3
pc_vismarg(eqcell) ; pc_vismarg:long_name = "Mean VIS-marginal-cloud pressure" ; description = "Average cloud top pressure for clouds marginally detected by VIS threshold regardless of IR threshold"	E3
tc_vismarg(eqcell) ; tc_vismarg:long_name = "Mean VIS-marginal-cloud temperature" ; description = "Average cloud top temperature for clouds marginally detected by VIS threshold regardless of IR threshold"	E3
tau_vismarg(eqcell) ; tau_vismarg:long_name = "Mean VIS-marginal-cloud TAU" ; description = "Average cloud visible optical thickness for clouds marginally detected by VIS threshold regardless of IR threshold"	E3
wp_vismarg(eqcell) ; wp_vismarg:long_name = "Mean VIS-marginal-cloud water path" ; description = "Average cloud water path for clouds marginally detected by VIS threshold regardless of IR threshold"	E3

cldamt_visirmarg(eqcell) ; cldamt_visirmarg:long_name = "Mean VIS/IR-marginal-cloud amount" ; description = "Average cloud amount for clouds marginally detected by either IR or VIS threshold"	E3
pc_visirmarg(eqcell) ; pc_visirmarg:long_name = "Mean VIS/IR-marginal-cloud pressure" ; description = "Average cloud top pressure for clouds marginally detected by either IR or VIS threshold"	E3
tc_visirmarg(eqcell) ; tc_visirmarg:long_name = "Mean VIS/IR-marginal-cloud temperature" ; description = "Average cloud top temperature for clouds marginally detected by either IR or VIS threshold"	E3
tau_visirmarg(eqcell) ; tau_visirmarg:long_name = "Mean VIS/IR-marginal-cloud TAU" ; description = "Average cloud visible optical thickness for clouds marginally detected by either IR or VIS threshold"	E3
wp_visirmarg(eqcell) ; wp_visirmarg:long_name = "Mean VIS/IR-marginal-cloud water path" ; description = "Average cloud water path for clouds marginally detected by either IR or VIS threshold"	E3
cldamt_irtypes(cloud_irtype, eqcell) ; cldamt_irtypes:long_name = "Mean cloud amount for IR-cloud types" ; description = "Cloud detected by IR threshold regardless of VIS threshold, IR type determined by cloud top pressure for blackbody"	C
pc_irtypes(cloud_irtype, eqcell) ; pc_irtypes:long_name = "Mean PC for IR-cloud types" ; escription = "Grid cell average cloud top pressures in three pressure intervals for clouds detected by IR threshold regardless of VIS threshold, no VIS-adjustment of location"	C
tc_irtypes(cloud_irtype, eqcell) ; tc_irtypes:long_name = "Mean TC for IR-cloud types" ;	C

description = "Grid cell average cloud top temperatures in three pressure intervals for cloud detected by IR threshold regardless of VIS threshold, no VIS-adjustment of location"	
cldamt_types(cloud_type, eqcell) ; cldamt_types:long_name = "Mean cloud amount for cloud types" ; description = "Cloud detected by either IR or VIS threshold, type determined by cloud top location adjusted for optically thinner clouds and optical thickness for liquid or ice as determi...	C
pc_types(cloud_type, eqcell) ; pc_types:long_name = "Mean PC for cloud types" ; escription = "Grid cell average of liquid or ice cloud top pressures in three pressure intervals and three optical thickness intervals for clouds detected by either IR or VIS thresholds with ...	C
tc_types(cloud_type, eqcell) ; tc_types:long_name = "Mean TC for cloud types" ; description = "Grid cell average of liquid or ice cloud top temperatures in three pressure intervals and three optical thickness intervals for clouds detected by either IR or VIS thresholds	C
tau_types(cloud_type, eqcell) ; tau_types:long_name = "Mean TAU for cloud types" ; description = "Grid cell average of liquid or ice cloud visible optical thicknesses in three pressure intervals and three optical thickness intervals for clouds detected by either IR or VIS	C
wp_types(cloud_type, eqcell) ; wp_types:long_name = "Mean WP for cloud types" ; description = "Grid cell average of liquid or ice cloud water path (linear average of optical thickness times particle radius) in three pressure intervals and three optical thickness intervals	C
ts_clrsky(eqcell) ; ts_clrsky:long_name = "Mean TS from clear sky composite" ; description = "Grid cell average surface skin temperature based on cloud detection procedure and using actual surface emissivity, less cloud-contaminated than ts"	E4
sigma_ts_time(eqcell) ;	E4

sigma_ts_time:long_name = "TS mean standard deviation over time" ; description = "Standard deviation of time variations of grid cell average surface skin temperature based on cloud detection procedure"	
ts(eqcell) ; ts:long_name = "Mean surface skin temperature" ; description = "Grid cell average surface skin temperature for clear pixels detected by both IR and VIS (IR at night) thresholds and using actual surface emissivity, more cloud-contaminated than ts_c	E4
rs_clrsky(eqcell) ; rs_clrsky:long_name = "Mean RS from clear sky composite" ; description = "Grid cell average visible surface reflectance during daytime and diurnally interpolated values during nighttime based on cloud detection procedure and aerosol corrected, less	E4
rs(eqcell) ; rs:long_name = "Mean surface reflectance" ; description = "Grid cell average visible surface reflectance for clear pixels detected by both IR and VIS (day only) thresholds and aerosol corrected, more cloud-contaminated than rs_clrsky"	E4
snoice(eqcell) ; snoice:long_name = "Mean snow/ice amount"	C
airtemp(eqcell) ; airtemp:long_name = "Near-surface air temperature (2 meters)"	E5
temp_profile(levtmp, eqcell) ; temp_profile:long_name = "Atmospheric temperature profile"	E5
tmax(eqcell) ; tmax:long_name = "Maximum temperature" ; description = "Not surface air temperature when surface inversion is present"	E5
ttrop(eqcell) ; ttrop:long_name = "Tropopause temperature"	E5

psurf(eqcell) ; psurf:long_name = "Surface pressure"	E5
pmaxt(eqcell) ; pmaxt:long_name = "Pressure at max temperature" ; description = "Not surface pressure when surface inversion is present"	E5
ptrop(eqcell) ; ptrop:long_name = "Pressure at tropopause"	E5
rh_nearsurf(eqcell) ; rh_nearsurf:long_name = "Near-surface relative humidity"	E5
rh_profile(levrh, eqcell) ; rh_profile:long_name = "Relative humidity profile"	E5
rhmaxt(eqcell) ; rhmaxt:long_name = "Relative humidity at max temperature"	E5
rhtrop(eqcell) ; rhtrop:long_name = "Relative humidity at tropopause"	E5
ozone(eqcell) ; ozone:long_name = "Ozone abundance"	E5

ISCCP HXG

Summary

In its basic form, HXG data are very similar to GridSat. HXG are global gridded at 0.1 deg resolution.

At present, there is no ISCCP Basic version of HXG.

Volume

These files are produced 3 hourly, with about 240 per month and 2920 per year.
At 31 MB each, that produces approximately 100 GB per year.