ISCCP HGG Basic Variable List

The following are the variables provided by ISCCP Basic Access

- **Cloud amount**
  - Mean Cloud amount
  - Frequency of occurrence of cloud amounts in 10% bins
  - Cloud amount binned by cloudtop pressure
  - Cloud amount binned by IR cloud type (*see below*)
  - Cloud amount binned by pressure and optical depth
  - Cloud amount binned by cloud type (*see below*)

- **Cloud parameters: pressure, temperature, water path, optical depth**
  - Mean cloud parameters
  - Mean parameters binned by cloud type
  - Std. Deviation of the cloud parameters in time and space

- **All of the above, but using the IR-based cloud mask**
  - Useful for diurnal studies since visible data are not used

- **Cloud information binned by IR cloud layer (low, medium, high)**
  - Cloud amount, pressure, temperature, water path, optical depth

- **Cloud information binned by cloud type and phase** (uses visible information):
  - Cloud amount, pressure, temperature, water path, optical depth

- **Surface information -** land fraction, land elevation, snow/ice information

- **Satellite codes** - specify which satellites were used in each cell

The following IR cloud types are defined in ISCCP:
- low   (680 < PC <= 1025hPa)
- middle (440 < PC <= 680hPa)
- high   (10 <= PC <= 440hPa)

The following cloud types are defined in ISCCP:
- cumulus_liquid   (680 < PC <= 1025hPa, 0 <= TAU <= 3.55, TC >= 253K)
- stratocumulus_liquid (680 < PC <= 1025hPa, 3.55 < TAU <= 22.63, TC >= 253K)
- stratus_liquid   (680 < PC <= 1025hPa, 22.63 < TAU <= 450, TC >= 253K)
- cumulus_ice   (680 < PC <= 1025hPa, 0 <= TAU <= 3.55, TC < 253K)
- stratocumulus_ice   (680 < PC <= 1025hPa, 3.55 < TAU <= 22.63, TC < 253K)
- stratus_ice   (680 < PC <= 1025hPa, 22.63 < TAU <= 450, TC < 253K)
- altocumulus_liquid   (440 < PC <= 680hPa, 0 <= TAU <= 3.55, TC >= 253K)
- altostratus_liquid   (440 < PC <= 680hPa, 3.55 < TAU <= 22.63, TC >= 253K)
- nimbostratus_liquid   (440 < PC <= 680hPa, 22.63 < TAU <= 450, TC >= 253K)
- altocumulus_ice   (440 < PC <= 680hPa, 0 <= TAU <= 3.55, TC < 253K)
- altostratus_ice   (440 < PC <= 680hPa, 3.55 < TAU <= 22.63, TC < 253K)
- nimbostratus_ice   (440 < PC <= 680hPa, 22.63 < TAU <= 450, TC < 253K)
- cirrus_liquid   (10 <= PC <= 440hPa, 0 <= TAU <= 3.55, TC >= 253K)
- cirrostratus_liquid   (10 <= PC <= 440hPa, 3.55 < TAU <= 22.63, TC >= 253K)
- deep_convective_liquid (10 <= PC <= 440hPa, 22.63 < TAU <= 450, TC >= 253K)
- cirrus_ice   (10 <= PC <= 440hPa, 0 <= TAU <= 3.55, TC < 253K)
- cirrostratus_ice   (10 <= PC <= 440hPa, 3.55 < TAU <= 22.63, TC < 253K)
- deep_convective_ice (10 <= PC <= 440hPa, 22.63 < TAU <= 450, TC < 253K)

The following variables are in the Full ISCCP data that is available via NOAA CLASS.
- Geometric info - Solar and satellite angles
- Ancillary data -
  - temperature profile,
  - humidity profile,
  - inversion flag,
  - tropopause temp, pressure
  - Sfc. air temperature
  - Ancillary data fill code
  - Ozone
  - Surface pressure
- Parameters isolated by differing results of the cloud tests:
  - IR-only clouds - Pixels that are cloudy in the IR but not the VIS
  - VIS-only clouds - Pixels that are cloud in the VIS but not IR
  - VIS/IR-marginally cloudy - Pixels that are marginally cloudy in the VIS and IR
  - IR-marginally cloudy - Pixels that are marginally cloudy in the IR
  - VIS-marginally cloudy - Pixels that are marginally cloudy in the VIS
- Cloud flag statistics (used for diagnostics)
  - Ratios of cloud flags
  - Longterm cloud flag
- Surface retrieved variables

- ○ Mean surface temperature for clear pixels and from clear sky composite
- ○ Mean surface reflectance for clear pixels and from clear sky composite
- Satellite variables
  - ○ Mean brightness temperature for various cloud tests conditions (IR-only, etc.)
  - ○ Mean visible scaled radiance for various cloud test conditions (IR-only, etc.)