I.   Introduction of the BES keys for the CF option

The CF option is complicated. Furthermore, we add various options via BES keys to ensure
different users to be able to use different features of the handler.

The BES keys are largely divided into three categories:
  1. Performance keys
  2. Vdata and Vgroup keys
  3. Misc. keys

For each category, two tables (description and default values(products)) are listed first,
More description for some keys can be found in the h4.conf.in file under the top directory of the
HDF4 handler source code directory.

Keys with more description are marked with * in the tables.

II.   Performance keys

```
  Performance keys         |   Description (if value is true)
 ============================================================================================
   EnablePassFileID           |  Valid file IDs are passed from metadata to data services
                              |  Avoid multiple file open/close calls
                              |  Work best with fileout netCDF module and with many variables in a file
                              |  The NcML module may not work when this key is turned on
 --------------------------------------------------------------------------------------------
   DisableStructMetaAttr      |  ECS Struct metadata attribute is not mapped to DAP
                              |  The handler makes metadata to follow CF based on this attribute
 --------------------------------------------------------------------------------------------
   EnableEOSGeoCacheFile*     |  HDF-EOS2 Grid lat and lon values are cached in two files
                              |  Cache directory must be created first
                              |  Cache directory size should be set properly
 --------------------------------------------------------------------------------------------
   EnableDataCacheFile*       |  Values of a variable opened by the HDF4 SDS API are cached to a file
                              |  Cache directory must be created first
                              |  Cache directory size should be set properly
 --------------------------------------------------------------------------------------------
   EnableMetaDataCacheFile*   |  DDS and DAS of special products(currently AIRS version 6 only) will be
                              |  written to local files of the server under the H4.Cache.metadata.path
                              |  directory.
                              |  Cache directory must be created first.
 --------------------------------------------------------------------------------------------
   EnableSpecialEOS*          |  DDS and DAS are built based on the special file structure
 --------------------------------------------------------------------------------------------
   DisableScaleOffsetComp*    |  Non-CF MODIS data values are not calculated
                              |  no-CF scale/offset rules are translated to follow CF
 --------------------------------------------------------------------------------------------
   DisableECSMetaDataMin      |  HDF-EOS2 ECS metadata are turned off for the data service.
                              |  ECS metadata includes coremetadata and archive metadata.
 --------------------------------------------------------------------------------------------
   DisableECSMetaDataAll      |  HDF-EOS2 ECS metadata are turned off for DAS,DDX and Data service.
 ============================================================================================
```

```
  Performance keys        |   Default values| Products
 ============================================================================================
   EnablePassFileID         |   false          | All
   -----------------------------------------------------------------
   DisableStructMetaAttr    |   true           | HDF-EOS2 or HDF4-ECS
   -----------------------------------------------------------------
   EnableEOSGeoCacheFile    |   false          | HDF-EOS2 Grid
   -----------------------------------------------------------------
   EnableDataCacheFile      |   false          | variables read by HDF4 SD interfaces
   -----------------------------------------------------------------
   EnableMetaDataCacheFile  |   false          | AIRS v. 6
   -----------------------------------------------------------------
   EnableSpecialEOS         |   true           | AIRS v.6, MOD/MYD-M8
   -----------------------------------------------------------------
   DisableScaleOffsetComp   |   true           | MODIS that use non-CF scale rules
   -----------------------------------------------------------------
   DisableECSMetaDataMin    |   true           | HDF-EOS2
   -----------------------------------------------------------------
   DisableECSMetaDataAll    |   false          | HDF-EOS2
 ============================================================================================
```

Additional keys when EnableEOSGeoCacheFile/EnableDataCacheFile is set.
HDF4.Cache.latlon.path must be set if H4.EnableEOSGeoCacheFil/H4.EnableDataCacheFile is true.

Users can change the value, but the path(/tmp/latlon) must exist with the proper permission.

HDF4.Cache.latlon.path=/tmp/latlon

 The prefix of the cached file must be given as something like the following:
HDF4.Cache.latlon.prefix=l

The size of the cache in megabytes, currently ~20GB cache for lat,lon
The size must be >0
HDF4.Cache.latlon.size=20000

The Additional key when EnableMetaDataCacheFile is set.
HDF4.Cache.metadata.path must be set if H4.EnableMetaDataCacheFile is true.
Users can change the value, but the path(/tmp/md) must exist with the proper permission.

H4.Cache.metadata.path=/tmp/md

III. Vdata and Vgroup keys

 Users may desire various ways for the HDF4 Vdata mapping. The following keys list
 some options to help users.

Vdata and Vgroup keys	Description (if a key value is true)
EnableHybridVdata*	map user-defined vdata in an HDF-EOS2 file to DAP
EnableCERESVdata*	map CERES HDF4 vdata to DAP
EnableVdata_to_Attr*	Vdata fields are mapped to attributes when number of vdata records is <=10.
EnableVdataDescAttr*	Vdata attributes will be mapped to DAP
DisableVdataNameclashingCheck*	Not turning on vdata name clashing check
EnableVgroupAttr*	Vgroup attributes will be mapped to DAP

Vdata and Vgroup keys	Default values	Products
EnableHybridVdata*	true	HDF-EOS2 Hybrid(objects added by HDF4 APIs)
EnableCERESVdata*	false	HDF4 CERES
EnableVdata_to_Attr*	true	HDF4/HDF-EOS2 that have user-defined vdata
EnableVdataDescAttr*	false	HDF4/HDF-EOS2 that have user-defined vdata
DisableVdataNameclashingCheck*	true	HDF4/HDF-EOS2 that have user-defined vdata
EnableVgroupAttr*	true	HDF4/HDF-EOS2 that have user-defined vgroup

IV.   Misc. keys

Keys	Description (if a key value is true)
EnableCheckMODISGeoFile*	Use the MODIS Geolocation files for lat and lon values
EnableSwathGridAttr*	HDF-EOS2 swath and grid attributes are mapped to DAP
EnableCERESMERRAShortName*	CERES or Merra short names are used for DAP object names
EnableCheckScaleOffsetType*	Check if the datatype of the attribute scale_factor is the same as the datatype of the attribute add_offset.

Keys	Default values	Products
EnableCheckMODISGeoFile*	false	MODIS swath that uses dimension map
EnableSwathGridAttr*	true	HDF-EOS2
EnableCERESMERRAShortName*	true	NASA CERES and Merra

```
EnableCheckScaleOffsetType* |  false           | HDF-EOS2 and HDF4
===============================================================================
```