As of October 18, 2010

Count	CDR Variable Name	Essential Climate Variable		Algorithm Name	Collateral Products	Responsible Team Member	Source Data Sensors	Future Source Data Sensor	Spacecraft	Channels	Spatial Resolution		Temporal Resolution			Product Units	Projection	Output Format	Metadata Standard	Other Characteristics	Key publication reference	Existing User Groups	Expected User Groups	Outcome	Impact	Community Workshop Status
Sequential i.d. number to count products, 1,2,3. -- Please list only one variable per row of the spreadsheet.	e.g. Level 1B radiance, albedo, cloud top height, SST, etc…	For Geophysical Variables (only, i.e., not for Level 1b): Please use the drop down menus in cells below to enter the ECV, you may also click on the above link and use pg 6 in the *Guideline for the Generation of Satellite-based Datasets and Products meeting GCOS Requirements* pdf document as a reference.		Please include a name that may be recognizable in the Climate community, e.g. ISCCP, GPCP, GRHSST, PATMOS-x, etc…	List all in one cell. Collateral Products are those which are not proposed as CDRs and are not yet considered to be climate quality, but which are routinely generated as secondary/intermediate outputs from the CDR algorithm. NOAA's CDR Program does not ensure or test the availability or reliability of Collateral Products. Users can contact the code developers for further information.	Please identify which member of your team is primarily responsible for development of this particular product.	List the space sensors which provided the raw data from which your product(s) were generated.	If **you** plan to provide CDR continuity from existing sensors to future sensors (e.g., from JPSS or other missions), please identify the mission and sensors to be used. NOTE: if you did not propose to address future sensors or data sets, please state "N/A"	Please list all spacecraft from which source data were used (e.g., NOAA-8, EOS Terra, SeaWiFS, GOES-14). Please follow the order used in the list of source data sensors.	Please identify all channels used for each type of source data sensor.	Please use a new row for each unique resolution (spatial or temporal) -- Please include the units of the resolution (e.g., mbars, km, degrees).	Please use a new row for each unique resolution (spatial or temporal) -- please include the units of the resolution (e.g., mbars, km, degrees)	As applicable, e.g., • early morning • mid-morning • afternoon	Start of Record: Month/Year	End of Record: Month/Year please say "present" if it is ongoing. note any gaps if they exist (e.g., Feb. 2003)	e.g. Reflectance (unitless), degrees Kelvin, Radiance W/m^2/sr, etc…	If gridded, what is your projection?	e.g. NetCDF4, Binary, HDF4, HDF5 etc…	Is your Metadata compliant with any standards or conventions? e.g., Climate Forecast (CF) Convention, FGDC Standards, ISO 19115-2, etc. If not adhering to a standard, please state "research"	e.g., Clear Sky only, latitudinal or longitudinal range, over oceans only, over land only, etc…	Please provide a full bibliographic reference for 1 or 2 (only) key publicly-available publications that describe your data set or process, if available.	Please state any existing users (either general communities, e.g., energy, health, climate modeling, or specific group {e.g., GFDL, GMAO, FAO, CDC…}). This will help us justify future funding.	List the user groups (not already listed previously) that would likely be interested in the CDR. Who/what is NOAA serving by investing in your work?	Results that stem from use of the outputs. Unlike output measures, outcomes refer to an event or condition that is external to the program and is of direct importance to the intended beneficiaries (e.g., scientists, agency managers, policy makers, other stakeholders). Examples of outcome metrics are the number of alternative refrigerants introduced to society to reduce the loss of stratospheric ozone and scientific outputs integrated into a new understanding of the causes of the Antarctic ozone hole.	The effect that an outcome has on something else. Impact metrics are outcomes that focus on long-term societal, economic, or environmental consequences. Examples of impact metrics include the recovery of stratospheric ozone resulting from implementation of the Montreal Protocol and related policies and the increase in public understanding of the causes and consequences of ozone loss.	Please state whether you have conducted your community workshop (y/n). If so, please provide date/location and URL if web page exists. If not yet held, please state your plans. **BACKGROUND:** Per the 2009 Announcement of Opportunity, "...the Project expects each Product Development Team to conduct an early community workshop (year 1 of funding) in which it will explain the theoretical basis of its algorithm and its proposed CDR development approach. The Team is expected to consider all suggestions and requests for action."
		Domain	Variable								Horizontal	Vertical	Orbits	Start Date	End Date											
1	Ice/snow surface temperature	Oceanic	Sea ice	APP-x, MODIS IST	none	Jeff Key, Dorothy Hall	AVHRR, MODIS	VIIRS	NOAA-7 through NOAA-19, Terra and Aqua, and JPSS	AVHRR 4,5; MODIS 31,32	5 km	N/A	All POES orbits	1982	present	K	EASE grid (equal area)	netCDF	?	60-90N, S (Arctic and Antarctic)	Key, J., J. Collins, C. Fowler, and R. Stone, 1997. High-latitude surface temperature estimates from thermal satellite data. Remote Sensing Environ., 61, 302-309.	Climate modeling for verification	Climate scientists; climate reanalysis verification	Detection and quantification of trends and variability of surface temperature in the polar regions	May lead to improvements in model parameterizations and a better understanding of climate	03/2010, Miami. Another workshop will be planned for the second project year.
2	Ice/snow albedo	Oceanic	Sea ice	APP-x (none for MODIS)	none	Jeff Key, Julienne Stroeve	AVHRR, MODIS	VIIRS	NOAA-7 through NOAA-19, Terra and Aqua, and JPSS	AVHRR 1,2; MODIS 1,2,6	5 km	N/A	All POES orbits	1982	present	Reflectance (unitless)	EASE grid (equal area)	netCDF	?	60-90N, S (Arctic and Antarctic)	Stroeve, J., J. Box, C. Fowler, T. Haran, and J.R. Key, 2001. Intercomparison Between in situ and AVHRR Polar Pathfinder-derived Surface Albedo over Greenland. *Remote Sensing of the Environment* , 75(3), 360-374.	Climate modeling for verification	Climate scientists; climate reanalysis verification	Detection and quantification of trends and variability of surface temperature in the polar regions	May lead to improvements in model parameterizations and a better understanding of climate	03/2010, Miami. Another workshop will be planned for the second project year.
3	Surface radiative fluxes (downwelling and upwelling shortwave and longwave)	Oceanic	Sea ice	APP-x	Cloud properties: amount, phase, type, height, optical thickness, particle size	Jeff Key, Xuanji Wang	AVHRR, MODIS	VIIRS	NOAA-7 through NOAA-19 and JPSS	AVHRR 1,2,3a/b,4,5; MODIS 1,2,6,20,31,32	5 km	N/A	All POES orbits	1982	present	W	EASE grid (equal area)	netCDF	research	60-90N, S (Arctic and Antarctic)	Key, J., A.J. Schweiger, and R.S. Stone, 1997: Expected uncertainty in satellite-derived estimates of the high-latitude surface radiation budget. *J. Geophys. Res*., 102(C7), 15837. Key, J., 2002, The Cloud and Surface Parameter Retrieval (CASPR) System for Polar AVHRR Data User's Guide. Space Science and Engineering Center, University of Wisconsin, Madison, WI, 62 pp.	Climate modeling for verification	Climate scientists; climate reanalysis verification; Energy	Detection and quantification of trends and variability of surface raditive energy in the polar regions	May lead to improvements in model parameterizations and a better understanding of climate and its change	03/2010, Miami. Another workshop will be planned for the second project year.
4	Sea ice thickness	Oceanic	Sea ice	OTIM	none	Xuanji Wang	AVHRR, MODIS	VIIRS	NOAA-7 through NOAA-19 and JPSS	AVHRR1,2,3a/b, 4,5; MODIS 1,2,6,20,31,32	5 km	N/A	All POES orbits	1982	present	m	EASE grid (equal area)	netCDF	research	60-90N, S (Arctic and Antarctic)	Xuanji Wang, Jeffrey Key, and Yinghui Liu (2010), A thermodynamic model for estimating sea and lake ice thickness with optical satellite data, J. Geophys. Res., revision submitted, April 2010.	Climate modeling for verification	Climate scientists; climate reanalysis verification; cryosphere	Detection and quantification of trends and variability of sea ice in the polar regions	May lead to improvements in model parameterizations and a better understanding of climate and cryosphere	03/2010, Miami. Another workshop will be planned for the second project year.
5	Sea ice age (Lagrangian tracking)	Oceanic	Sea ice	Lagrangian Age	Ice thickness estimated from age; ice albedo parameterizations based on age relationships	Chuck Fowler, Jim Maslanik	AVHRR, SMMR, SSM/I, AMSR-E, AOBP buoy trajectories	VIIRS,, MIS, AMSR-2/3	NOAA-7 through NOAA-19 and JPSS	AVHRR 4,5; MODIS 31,32	12.5 km	N/A	All POES orbits	1979	present	K, brightness temp. (Tb)	EASE grid (equal area)	binary and visualizations	?	All ocean (ice-covered) areas	Fowler, C., W. Emery and J.A. Maslanik, 2003. Satellite derived arctic sea ice evolution Oct. 1978 to March 2003, *Trans. Geosci. and Remote Sensing Letters,* Vol. 1, No. 2, 71-74. Maslanik, J.A., C. Fowler, J. Stroeve, S. Drobit, J. Zwally, D. Yi and W. Emery, 2007. A younger, thinner Arctic ice cover: Increased potential for rapid, extensive sea-ice loss. Geophys. Res. Lett., 34, L24501, doi:10.1029/2007GL032043.	NCAR, National Ice Center, NORAD, USGS, various universities and research groups. Climate research community	environmental organizations, shipping operators, resource extraction and management organizations	Findings have led to new appraisals of vulnerability of the ice pack. contributing to revised assessment of marine mammal habitat and improved predictions of sea ice risk to shipping and operations. Providing impetus for climate model enhancements.	Provies definitive, real-time indication of sea ice recovery or further loss. Long-term record will quantify multi-decadal effects of warming mitigation strategies. Product is easily understandable by public as a climate change indicator.	03/2010, Miami. Another workshop will be planned for the second project year.
6	Sea ice concentration	Oceanic	Sea ice	APP-x	none	Yinghui Liu, Walt Meier	AVHRR, MODIS	VIIRS, AMSR-2/3, MIS	NOAA-7 through NOAA-19, Terra and Aqua, NPP, JPSS	AVHRR 1,2,4,5; MODIS 1,2,31,32	5 km	N/A	All POES orbits	1982	present	percentage (%)	EASE grid (equal area)	netCDF	?	60-90N, S (Arctic and Antarctic)		Climate modeling for verification	Climate scientists; climate reanalysis verification; environmental organizations, biologists, general public	Detection and quantification of trends and variability of surface temperature in the polar regions, influence of sea ice changes on climate, biology, and human activity.	May lead to improvements in model parameterizations and a better understanding of climate feedbacks in the polar regions	03/2010, Miami. Another workshop will be planned for the second project year.
7	Sea ice concentration	Oceanic	Sea ice	NASA Team, Bootstrap	none	Walt Meier	SMMR, SSM/I, SSMIS	MIS	DMSP, JPSS, GCOM-W	19,22,37 GHz	25 km	N/A	Daily composites fromall POES orbits	1978	present	Concentration (0-100%)	EASE grid (equal area), possibly polar stereographic	binary	ISO 19115	90N-90S	Cavalieri, D. J., C. l. Parkinson, P. Gloersen, J. C. Comiso, and H. J. Zwally. 1999. Deriving long-term time series of sea ice cover from satellite passive-microwave multisensor data sets. *Journal of Geophysical Research* 104(7): 15,803-15,814. Comiso, J.C., and F. Nishio. 2008. Trends in the sea ice cover using enhanced and compatible AMSR-E, SSM/I, and SMMR data. Journal of Geophysical Research 113, C02S07, doi:10.1029/2007JC0043257.	sea ice researchers, climate modelers, operational ice centers, SST groups, biologists, educators, journalists, general public	sea ice researchers, climate modelers, operational ice centers, SST groups, biologists, educators, journalists, general public	Consistent, authoritative long-term climate record to assess impacts of Arctic sea ice decline and Antarctic sea ice variability on climate, biology, and human activities. Validation of and assimilation into GCM and regional climate models.	May lead to improvements in model parameterizations and a better understanding of climate. Will provide a consistent standard concentration product for a variety of user communities.	03/2010, Miami. Another workshop will be planned for the second project year. A sea ice concentration specific workshop was held 12/2008, San Francisco, as part of earlier sea ice CDR. Another algorithm-focused workshop is planned in late-2010, early 2011
8	Sea ice motion	Oceanic	Sea ice	Cross-Correlation	none	Chuck Fowler, Walt Meier, Yinghui Liu	AVHRR, MODIS, SMMR, SSM/I, SSMIS, AOBP buoys	VIIRS, AMSR-2/3, MIS	NOAA-7 through NOAA-19, DMSP, Terra and Aqua, Nimbus-7, NPP, JPSS	AVHRR 4; MODIS 31	5-25 km	N/A	All POES orbits	1979	present	Velocity (direction and speed; cm/s)	EASE grid (equal area)	binary	?	All ocean (ice-covered) areas. Feasible over large inland water bodies but not currently implemented.	Emery, W., C. Fowler, and J. Maslanik. 1995. Satellite remote sensing of ice motion, in *Oceanographic Applications of Remote Sensing* , ed. Motoyoshi Ikeda and Frederic W. Dobson. CRC Press, Boca Raton. Maslanik, J., C. Fowler, J. Key, T. Scambos, T. Hutchinson, and W. Emery. 1998. AVHRR-based Polar Pathfinder products for modeling applications. Annals of Glaciology 25:388-392.	sea ice researchers, climate and regional-scale modelers, National Ice Center, pollution tracking. Required product for Ice Age product generation	environmental organizations, wildlife/biology resaerch and monitoring, shipping operators, resource extraction and management organizations	Ice transport data led to insights into ice response to weather and climate. Assessing pan-arctic transport of contaminants, quantifying performance of ice and climate models, assessing oastal ice hazards and hazards for offshore drilling	Significance for design of ice-strengthened ships, optimal shipping routes, shipping and oil/gas drilling hazards, hazards, marine mammal assessments	03/2010, Miami. Another workshop will be planned for the second project year.
9	Sea ice melt onset and freeze-up	Oceanic	Sea ice	Drobot and Anderson, Markus and Miller	none	Julienne Stroeve, Walt Meier	SMMR, SSM/I, AMSR-E	MIS, AMSR-2/3	DMSP, JPSS, GCOM-W	19, 37 GHz	12.5-25 km	N/A	Daily composites from all POES orbits	1979	present	Day of year, number of days	EASE grid (equal area)	netCDF	?	All ocean (ice-covered) areas	Markus, T., J. C. Stroeve, and J. Miller (2009), Recent changes in Arctic sea ice melt onset, freezeup, and melt season length, J. Geophys. Res., 114, C12024, doi:10.1029/2009JC005436. Drobot, S. D., and M. R. Anderson (2001), An improved method for determining snowmelt onset dates over Arctic sea ice using scanning multichannel microwave radiometer and Special Sensor Microwave Imager data, J. Geophys. Res., 106, 24,033 – 24,049, doi:10.1029/2000JD000171.	Climate modeling for verification	Climate scientists; climate reanalysis verification	Detection and quantification of trends and variability of surface temperature in the polar regions	May lead to improvements in model parameterizations and a better understanding of climate	03/2010, Miami. Another workshop will be planned for the second project year.
10	Snow cover	Terrestrial	Snow cover	Snowmap	none	Dorothy Hall	MODIS	VIIRS	Terra and Aqua, NPP, JPSS	MODIS 1,2,4,6,31 & 32	500 m to 0.05 deg	N/A	All orbits	2000	present	Unitless	sinusoidal	HDF-EOS	Yes - EOS Project	90N-90S - land only	Hall, D.K. and G.A. Riggs, 2007: "Accuracy assessment of the MODIS snow-cover products," Hydrological Processes, 21(12):1534-1547, DOI: 10.1002/hyp.6715.	Climate modeling for verification	Climate scientists; climate reanalysis verification	Detection and quantification of trends and variability of surface temperature in the polar regions	May lead to improvements in model parameterizations and a better understanding of climate	03/2010, Miami. Another workshop will be planned for the second project year.
11	Greenland surface temperature	Terrestrial	Ice Surface Temperature	IST	none	Dorothy Hall, Joey Comiso, Jeff Key, et al.	MODIS	MODIS	Terra and Aqua, NPP, JPSS	MODIS 31 & 32	5 km	N/A	All orbits	200	present	K	sinusoidal	HDF-EOS	Yes - EOS Project	Greenland only	Hall, D.K., J.E. Box, K.A. Casey, S.J. Hook, C.A. Shuman and K. Steffen, 2008: "Comparison of satellite-derived ice and snow surface temperatures over Greenland from MODIS, ASTER, ETM+ and in-situ observations," Remote Sensing of Environment, 112(10):3739-3749, doi:10.1016/j.rse.2008.05.007.	Climate modeling for verification	Climate scientists; climate reanalysis verification	Detection and quantification of trends and variability of surface temperature in the polar regions	May lead to improvements in model parameterizations and a better understanding of climate	03/2010, Miami. Another workshop will be planned for the second project year.