MODIS Collection 006 Cloud Optical Properties (06OD) Change Status OPEN TASKS ONLY

Version 2.14 O (4/21/2011)

	Cloud Optical Properties (06OD) Changes: Steve Platnick, Michael King, Gala Wind AIR, MOD, SIM: CHIMAERA section definitions. AIR: airborne sensors (MAS and MASTER) MOD: MODIS SIM: retrieval code that runs on DISORT simulated radiances/reflectances	**Investigation Begun**	**Programming Begun**	**Investigation Completed**	**Programming Completed**	**Chimaera Implemented (I) or Dropped (D) ?**			**Operational Implemented (I) or Dropped (D) ?**
						AIR	MOD	SIM	
1.	Integrate low cloud temperature retrievals into the MOD06OD algorithm to include non-unity emissivity (from optical thickness retrieval). (11/06) **Comments & Results:** GW: 12.02.10 – received code from Rich Frey. Will proceed accordingly. A possibility to either modify the CT answer or have another SDS to report the modified Tc and/or Pc GW: 3.29.11: -- integration proceeding. We are about to test actual IRW retrieval and fill in the SDS that we added. GW: 4.21.11 – integration to MODIS completed. We are starting science test 8.0	X	X	X	X		X		X
2a	Augment the MOD06 QA to reflect any additional QA bits necessary to represent the changes made to the algorithm. **Comments & Results:** GW-4.1.09: We are definitely going to need at least another byte in the QA array. The values of individual tests will have to go to the QA byte. Additional 5 bits are needed to represent the full multilayer answer and there is not enough space in the current QA array to do anything with that. When we add additional retrievals and such, we'll need more QA anyways. I see the QA array growing to as large as 7 bytes. GW-4.30.09: the QA array has been extended to 7 bytes via CR process. We now have a number of spares in the QA GW- 5.13.09: multilayer individual test QA is now stored in byte 6 of the QA as the first five bits of that byte. With more stuff to be added to this version of MOD06, this QA will get filled in real fast. GW – 5.19.09: At this time we have officially switched to CHIMAERA 6.0.0 – M2.1. The code is no longer able to execute on the old C5 files as the filespec has now changed. This change has been committed to CVS for all the products / processing paths. GW-11.26.10: submitted to Paul a list of proposed QA changes.	X	X	X					
3.	Improve cirrus cloud retrievals of τ_c, r_e								
3c.	Phase Logic (POC: Benjamin Marchant) **Comments & Results:** Comments and Results here.								
4.	Modify table look-up libraries and solution algorithm:								
4d.	Use the Platnick research code – style solution logic to allow solutions when they are just a bit outside of library space **Comments & Results:** Comments and Results here.								
5b.	Coakley-type spatial variance vs. temperature approach. **Comments & Results:** In the cloud mask file, Rich Frey has provided 250m band 1 and band 2 reflectance means and standard deviations for each 4x4 250 box centered on a 1 km aggregated pixel (same 4x4 array for which 250m cloud mask bits are provided). The means and sdev are provided as an SDS. This information has been shown separately by Lusheng Liang et al. (2009) and Zhibo Zhang et al. (2011, in writing) to be a proxy for non-plane-parallel like retrieval signatures. We will read in this SDS and report it in MOD06. TBD regarding: (1) whether to report this information in QA arrays and/or as an SDS - use of this information for operational L3 screening purposes suggests we at least need QA info; (2) for both bands, report mean and sdev/mean (dispersion might be easier for scaling purposes instead of absolute sdev, especially if use QA)	X				–		–	
8.	Pursue Aqua cold focal plane adjustment in L1B production. Jack Xiong says Vermote has done something along these lines. (05/08) PEATE testing underway with Bennatz emprical correction **Comments & Results:** SEP – 6.1.09: This addressed the issue that we tried to quantify with the Terra deregistration test. How/if we can better register Aqua is still TBD. If anything is to be done, than yes it's likely/hopefully a L1B action item ... but as the only apparent group interested in an Aqua registration improvement, it is nevertheless an issue we should track.	T	T	T	T	–	T	–	T

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						AIR	MOD	SIM	
18.	Add color tests to CSR to better identify dust vs. thin uniform cloud. (Wind, 02/09) **Comments & Results:** GW –11.26.10: implemented color tests to put the clouds back. Preliminary testing successful. Will proceed to science test 6 shortly.	X	X					–	
21.	Do something with the Statistics_1km SDS. It is currently empty. **Comments & Results:** GW – 5.20.09: Either delete it or fill it in. I vote for 'fill it in' and propagate to all CHIMAERA products. GW – 6.1.09 : As per group meeting discussion. This SDS will be filled in with additional parameters of mean cloud top pressure and temperature for the granule added to the ones already there.	X		X					
24.	Implement correction for atmospheric emission above cloud. This was supposed to have been done in C5, but apparently was never actually implemented as I found out. **Comments & Results:** GW-12.28.09 – Dude, where's my mop? GW:1.7.10 – will use the CKD's directly to get the emission from profile.	X		X					
29.	Retrieval QA is to be set based on the uncertainty values instead of the existing table. **Comments & Results:** GW-12.28.09 – Added as per discussion with Steve on 12.24.09								
30.	New Surface Albedo files **Comments & Results:** comments and results here								
31.	New ice crystal distributions (POC: Bryan Baum) **Comments & Results:** comments and results here								

PGE (06OD) General Status as of 3/29/2011

1. CHIMAERA 6.0.0-M2.1 is now available from CVS. Due to filespec changes for all processing paths to reflect C6 improvements the CHIMAERA code will no longer execute over C5 data. CR must be run anew for any and all processing paths that are present or you will be risking some seriously nasty segfaults.
2. CHIMAERA 6.1.0-M2.2 is now available from CVS.
3. All MODAPS-CHIMAERA wrappers are now in place thanks to George Britzolakis from MODAPS. CHIMAERA plays nice with MODAPS system. No problems.
4. CHIMAERA 6.0.13-M2.3 is now available from CVS. We are now keeping the main version number in line with what MODAPS is using as science tests for the operational code are now well underway. You MUST do a clean checkout. You can not do an 'update' because the code structure has been significantly altered.
5. CHIMAERA 6.0.15-M2.3 is now available from CVS. If you already have 6.0.13-M2.3, do a CVS update. If you don't then follow instructions in item 4.
6. CHIMAERA 6.0.21-M2.3 is now available from CVS.

Science Test Listing, for more details please see the test website

1. Baseline test (includes 1km McGarrah CT code and some minor structural changes) (COMPLETED)
2. New Multilayer algorithm (COMPLETED)
3. DISORT-based C5-style libraries without Cox-Munk (COMPLETED)
4. NISE (that doesn't play nice) (COMPLETED)
5. Cox-Munk libraries (COMPLETED)
6. L1B uncertainty indices as measurement error (COMPLETED)
7. GDAS interpolation (COMPLETED)
8. 3.7um Tc iteration (IN PROGRESS)
9. 3.7um atmospheric emission

10. New solution logic (For clouds near/just outside library space)
11. New phase algorithm
12. New ice libraries (roughened or not or whatever)
13. New surface albedo
14. CSR color tests