

An SI-Traceable Space-based Climate Observing System					
A CEOS, WMO-GSICS Workshop					
Day 1: 9 Sept. 2019					
Session and Presenter	Institution	Title	Duration	Start Time	Filename
Introduction Chair: Bruce Wielicki					
Nigel Fox	NPL	Welcome	00:15	08:30	01day1_SITSCOS2019_FoxNigel_NPL.pdf
Tim Hewison	EUMETSAT	Extending GSICS to Inter-Calibrate Satellite Radiances to an Absolute Scale	00:30	08:45	02day1_SITSCOS2019_HewisonTim_EUMETSAT.pdf
Greg Kopp	LASP	White paper contribution plan & Special Issue	00:20	09:15	03day1_SITSCOS2019_KoppGreg_LASP.pdf
Applications and Needs Chairs: Greg Kopp & Tim Hewison					
Bruce Wielicki	NASA-Langley	Designing the Climate Observing System of the Future	00:30	09:35	04day1_SITSCOS2019_WielickiBruce_NASA.pdf
Heather Lawrence	ECMWF	The GAIA-CLIM project at ECMWF and the Met Office: use of reference radiosonde observations and NWP short-range forecasts for satellite cal/val to reference standards	00:20	10:05	05day1_SITSCOS2019_LawrenceHeather_ECMWF.pdf
Fabien Carminati	UK Met Office	On the need for SI-traceable calibration in support of NWP and reanalysis	00:30	10:25	06day1_SITSCOS2019_CarminatiFabien_MetOffice.pdf
		<i>Break and Posters</i>	00:30	10:55	
Jack Xiong	NASA/GSFC	MODIS and VIIRS Calibration History and Future Outlook	00:30	11:25	07day1_SITSCOS2019_XiongJack_NASA.pdf
Byron Tapley	CSR	Calibration and Traceability for the GRACE Measurements	00:30	11:55	08day1_SITSCOS2019_TapleyByron_CSR.pdf
URS	ESA	Operational User Requirements for benchmark sensors such as TRUTHS	00:20	12:25	09day1_SITSCOS2019_GreeningMC_ESA.pdf
		<i>Lunch</i>	01:00	12:45	
Tom Pagano	NASA/JPL	Improving the longest SI traceable hyperspectral infrared radiance record from space: AIRS on Aqua	00:30	13:45	10day1_SITSCOS2019_PaganoTom_NASA.pdf
Bruce Guenther [WebEx]	Stellar Sol.	An introduction and investigation into the SI world of climate attribute studies of SmallSat, MicroSat and NanoSat derived data sets	00:20	14:15	11day1_SITSCOS2019_GuentherBruce_StellarSolutions.pdf
Samuel Hunt	NPL	Applying Metrological Techniques to Satellite Fundamental Climate Data Records	00:20	14:35	12day1_SITSCOS2019_HuntSam_NPL.pdf
		<i>Break and Posters</i>	00:30	14:55	
Bill Bell	ECMWF	Traceable Observations in Support of the Copernicus Climate Change Service	00:30	15:25	13day1_SITSCOS2019_BellBill_ECMWF.pdf
Dennis Helder	USGS	Vicarious Calibration—Current Capabilities and Future Possibilities	00:20	15:55	14day1_SITSCOS2019_HelderDennis_USGS.pdf
Discussion		Discussion on White Paper Contributions on Societal Needs & Applications	00:45	16:15	
		<i>Icebreaker and Poster Viewing</i>	01:30	17:00	
		<i>Adjourn</i>		18:30	

Day 2: 10 Sept. 2019					
Session and Presenter	Institution	Title	Duration	Start Time	Filename
Reflected Solar Observations Chairs: Xiuqing Hu & Nigel Fox					
Peng Zhang (Keynote)	CMA	The Development of Chinese Radiometric Benchmark Satellite	00:45	08:30	01day2_SITSCOS2019_ZhangPeng_CMA.pdf
Bruce Wielicki	NASA-Langley	CLARREO Pathfinder Mission: Calibrating Climate Observing Systems of the Future	00:30	09:15	02day2_SITSCOS2019_WielickiBruce_NASA.pdf
Greg Kopp	LASP	CLARREO Pathfinder Mission: The HyperSpectral Imager for Climate Science (HySICS)	00:30	09:45	
Nigel Fox	NPL	Traceable Radiometry Underpinning Terrestrial- and Helio- Studies (TRUTHS): Enabling a Space Climate and Calibration Observatory: An ESA EarthWatch mission	00:30	10:15	04day2_SITSCOS2019_FoxNigel_NPL.pdf
		<i>Break and Posters</i>	00:30	10:45	
Paul Green	NPL	SI-Traceable pre-flight calibration of optical satellite sensors	00:20	11:15	05day2_SITSCOS2019_GreenPaul_NPL.pdf
Lingling Ma	CAS	Stratospheric high-altitude-balloon-based Demonstration and Validation System for Chinese Space-based Benchmark Sensor	00:20	11:35	06day2_SITSCOS2019_MaLingling_CAS.pdf
Javier Gorroño	NPL	Defining an optimised cross-calibration strategy based on matchup correlation	00:20	11:55	07day2_SITSCOS2019_GorronoJavier_NPL.pdf
		<i>Lunch</i>	01:00	12:15	
Xin Ye	CAS	Investigation on Space Radiation Standard of Solar Reflection Spectrum	00:20	13:15	08day2_SITSCOS2019_XinJe_CAS.pdf
Dennis Helder	USGS	A Piggyback Radiometer Concept for Improved Calibration of Disaggregated Earth Observing Satellite Systems	00:20	13:35	09day2_SITSCOS2019_HelderDennis_USGS.pdf
Wenbo Sun	SSAI	Polarization distribution models (PDMs) for NASA CLARREO Pathfinder's inter-calibration applications	00:20	13:55	10day2_SITSCOS2019_SunWenbo_SSAI.pdf
		<i>Break and Posters</i>	00:30	14:15	
				14:45	
Lunar Calibrations Chair: Nigel Fox					
Tom Stone (Keynote)	USGS	Recent Developments Toward a High-accuracy Lunar Reference Standard for Reflected Solar Wavelengths	00:45	14:45	11day2_SITSCOS2019_StoneTom_USGS.pdf

Trevor Jackson	LaRC	ARCSTONE: Calibration of Lunar Spectral Reflectance from Space	00:30	15:30	12day2_SITSCOS2019_JacksonTrevor_LaRC.pdf
Xiuqing Hu	CMA	Ground-based and Space-borne Lunar Observation in China and Prospective Improvement for lunar reference model	00:30	16:00	13day2_SITSCOS2019_HuXiuqing_CMA.pdf
Discussion		Discussion on White Paper Contributions on Reflected Solar & Lunar Observations	00:45	16:30	
		<i>Adjourn - Walk to Dinner</i>	00:45	17:15	
		Dinner (Optional)		18:00	

Day 3: 11 Sept. 2019

Session and Presenter	Institution	Title	Duration	Start Time	Filename
IR Observations					
Chair: Bruce Wielicki					
Dave Smith	RAL	Challenges for In-Flight Calibration of Thermal Infrared Instruments for Earth Observation	00:30	08:30	01day3_SITSCOS2019_SmithDave_RAL.pdf
Lei Ding	CAS	Highly accurate FTIR instrument for space observation	00:30	09:00	02day3_SITSCOS2019_DingLei_CAS.pdf
Hank Revercomb (Keynote)	SSEC	The IR Absolute Radiance Interferometer (ARI) for CLARREO: Heart of a Pathfinder Mission Concept for Establishing a Key Climate Benchmark (Part-1)	00:45	09:30	03day3_SITSCOS2019_RevercombHank_SSEC.pdf
Fred Best	SSEC	The IR Absolute Radiance Interferometer (ARI) Prototype for CLARREO: New Technologies for On-Orbit Verification and Test (Part-2)	00:20	10:15	04day3_SITSCOS2019_BestFred_SSEC.pdf
Dave Tobin	SSEC	The IR Absolute Radiance Interferometer (ARI) Prototype for CLARREO: Assessing the Ability to Serve as a Satellite Inter-calibration Reference (Part-3)	00:20	10:35	05day3_SITSCOS2019_TobinDave_SSEC.pdf
Helen Brindley	Imperial Coll.	FORUM: A Candidate ESA Earth Explorer Mission	00:20	10:55	06day3_SITSCOS2019_BantgesRichard_ImperialCollege.pdf
		<i>Break and Posters</i>	00:30	11:15	
Broadband Radiation and Solar Observations					
Chair: Greg Kopp					
Martin Mlynczak (Keynote)	NASA-Langley	Continuity of Earth Radiation Budget Measurements from Space	00:45	11:45	07day3_SITSCOS2019_MynczakMartin_NASA.pdf
Erik Richard	LASP	Accurate Long-term Measurements of Solar Spectral Irradiance: The TSIS-1 Spectral Irradiance Monitor on the International Space Station	00:20	12:30	08day3_SITSCOS2019_RichardErik_LASP.pdf
Xiaobing Zheng	CAS	VIS-SWIR solar spectral irradiance radiometry based on Parametric Down-Conversion	00:20	12:50	09day3_SITSCOS2019_ZhengXiaobing_CAS.pdf
		<i>Lunch</i>	01:00	13:10	
Microwave Observations					
Chair: Tim Hewison					
Ed Kim	NASA/GSFC	SI Traceable Microwave Brightness Temperature Calibration/Inter-calibration: Benefits, Technology, and Needs	00:30	14:10	10day3_SITSCOS2019_KimEd_NASA.pdf
Vince Leslie	MIT	Climate-quality Calibration for LEO-microwave Radiometry	00:20	14:40	11day3_SITSCOS2019_LeslieVince_MIT.pdf
Hu (Tiger) Yang	UMD	Lunar Microwave Brightness Spectrum for SI Traceable Calibration of Spaceborne Microwave Radiometer Observations	00:20	15:00	12day3_SITSCOS2019_HuTigerYang_UMD.pdf
Discussion		Discussions on White Paper Contributions for IR, Broadband, and Microwave Observations (in parallel)	00:45	15:20	
		<i>Break and Posters</i>	00:30	16:05	
Meeting Summary					
Chair: Bruce Wielicki					
		White Paper and Special Issue Plans	00:30	16:35	
		Follow-on workshop - Active instruments, L2->L1 link	00:20	17:05	
		<i>Adjourn</i>		17:25	
Poster Presenters	Institution	Title			
Sarah Douglas	NPL	Truths workshop abstract - Comparing ECV Products With the Evaluation and Quality Control Function of the Copernicus Climate Change Service			
Qijin Han	CAS	Research Plan on Radiometric Re-calibration Technology for Historical Data of Chinese Land Satellites			
Derek Houtz	WSL	Progress of IEEE GRSS P4004; A Standard for Microwave Radiometer Calibration			
Sam Hunt	NPL	A Metrological Approach to Producing Harmonised Fundamental Climate Data Records From Long-Term Sensor Series Data			
Ling Li	NIM, China	A study on the effects of uncertainty sources on radiometric measurement in ground-based validation sites			
Xu Liu	NASA-Langley	Fast Radiative Transfer Model in Support of CLARREO Pathfinder and other Inter-Calibration Application			
Zhifeng Wu	NIM, China	Spectral Radiance Calibration at Low Light Level			
Yongguang Zhao	CAS	Technical progress in cross-calibration through spaceborne SI-traceable reference instruments for Chinese high-resolution satellite missions			