CSD Laboratory Review Action Sheet 07 August 2017						
Section	**Recommendation**	**Action**	**Person Responsible**	**Target Date**	**Date Done**	**Status/Notes**
Summary Rec. #1	CSD should pursue an aggressive hiring strategy that aims to grow the federal workforce with careful attention given to improving the demographic imbalance in gender, ethnicity and age.	***Action: Identify critical open billets to fill with early to mid-career scientists. During selection give weight to gender and ethnicity.***	CSD Office of the Director: David Fahey, John Daniel, Eric Williams	FY2017	Ongoing, depending on WFMO. Some open slots have been filled.	Since the lab review four open positions have been filled - two with men and two with women. All are early to mid-career scientists.
Summary Rec. #2	CSD should open the door for CIRES employees to grow professionally and receive proper recognition for their contributions, including the ability to propose research as principal investigators.	***Action: Work with CSD staff to evaluate proposals on a case-by-case basis.***	CSD Office of the Director: David Fahey, John Daniel, Eric Williams	FY2017	Ongoing.	Policy concerning proposals by CSD CI staff with funding transferred directly to CIRES has been modified to allow individual cases, subject to approval by CSD Director. ESRL policy regarding these proposals has been formulated to ensure consistent action across Divisions.
Summary Rec. #3	NOAA OAR should continue to entrust CSD with management of its research funds and scientific direction	***Action: No CSD action required***	OAR leadership	Continuous process	Ongoing	CSD hopes that this situation will continue into the future.

Climate Rec. #1	OVERALL: CSD's efforts in the area of climate and stratospheric research are well balanced and should be maintained. Individual reviewers pointed out the following areas for research emphasis: A. understanding stratospheric aerosol microphysics as a function of sulfur dioxide (SO2); B. improve understanding of connections of water vapor, cirrus clouds, and dehydration in the tropical tropopause; C. continue work on clouds, aerosols, and precipitation interactions to improve climate models; D. emphasis on stratospheric measurements to define ongoing evolution of stratospheric chemistry and dynamics	***OVERALL: No CSD action required.*** ***Action 1.A: CSD will develop state-of-the-art SO2 instrument and deploy on stratospheric (NASA Global Hawk) and upper tropospheric (NASA DC-8) sampling platforms;*** ***Action 1.B: CSD will continue research in this area with collaborative measurement strategies (e.g., NASA) and enhanced modeling activities;*** ***Action 1.C: CSD will continue research on aerosol, cloud, and precip interactions and strengthen that work with additional post-doctoral staff;*** ***Action 1.D: CSD will strengthen its collaborations with external (to NOAA) agencies to find new opportunities for stratospheric measurements and modeling research.***	OVERALL: CSD Office of the Director Other actions: CSD program area leads: Ru-Shan Gao - Atmospheric Composition and Chemical Processes; Karen Rosenlof - Chemistry and Climate Processes	OVERALL: Continuous process Other actions: FY2017 - FY2018	1.A: 2017-2018 1.B: 2016-2017 1.C: 2016-2017 1.D: 2017-2018	1.A: SO2 instrument built; to be deployed in 2017 and 2018; 1.B&D: CSD has proposed work to NASA to deploy instruments on the Global Hawk; CSD will execute in 2017-2018 a balloon-based glider system as a new platform for aerosol and optical instruments to reach the upper troposphere and lower stratosphere; 1.C: two post-doc positions filled in 2016 with an additional position to be filled in 2017-2018
Air Quality Rec. #1	CSD's efforts in the area of air quality are well balanced and should be maintained.	***Action: No CSD action required***	CSD Office of the Director: David Fahey, John Daniel, Eric Williams	Continuous process	Ongoing	CSD continues to respond directly to stakeholder requests for scientific information, e.g.,: Las Vegas Ozone Study (2013 & 2017) informed Clark County, NV, on sources of high ground level ozone; Utah Winter Fine Particle Study (2017) informed Utah on sources of winter particulate pollution in Salt Lake City region.

Air Quality Rec. #2	CSD should consider developing strength in toxicology to investigate how to use their emissions inventories and CTMs to better define exposure and develop methods to relate aerosol composition to toxicology.	***Action: CSD will continue participation in the NOAA One Health activity and pursue connections with the Centers for Disease Control (CDC) and National Institutes of Health (NIH). CSD will continue to collaborate with NOAA's Air Quality Forecast capability.***	CSD Office of the Director: Eric Williams	FY2017 - FY2020	Ongoing	CSD has made connections to CDC and NIH via NOAA's One Health activity. Collaborative research opportunities will be explored within the constraints of each agency's mission. This will be aligned with CSD's Fire Influence on Regional and Global Environments Experiment (FIREX; 2016-2019) and will extend to state and local health authorities. CSD will also continue to pursue our emerging bio-aerosol activity which connects climate, air quality, and health and will require collaborations with toxicology experts.
Air Quality Rec. #3	CSD should consider ways to promote broader use of their observations through stronger ties to the modeling and satellite communities.	***Action: CSD will work with NESDIS and NASA to use CSD observations to improve satellite data retrievals for gas and aerosol species;*** ***CSD will use our data to evaluate and improve chemistry-climate models and provide data to NOAA and other agencies for collaborative model improvement activities***	CSD program area leads: Michael Trainer - Regional Chemical Modeling; Karen Rosenlof - Chemistry and Climate Processes	FY2017	Ongoing	CSD will build closer connections with NESDIS and NASA to couple our datasets with satellite data to improve retrievals of the latter. In FY17 CSD and NESDIS are collaborating on projects 1) to improve emissions inventories using satellite data and 2) develop an atmospheric composition project within the JPSS Proving Ground and Risk Reduction program. CSD will maintain the strong leadership role in international activities (e.g., Global Emission Initiative (GEIA); Tropospheric Ozone Assessment Report (TOAR)) that use our data (and

						others) to improve emission inventories and CTMs. CSD will strengthen collaborative model activities, especially within NOAA (e.g., ESRL/GSD; GFDL), that use CSD data to improve models.
Connections Rec. #1	CSD should consider developing a strategic plan aimed at developing better integration among the individual topics and projects bridging climate, air quality, and the stratosphere.	***Action: CSD will update the current strategic plan and will include better integration among the major themes and among individual projects***	CSD Office of the Director: David Fahey, John Daniel, Eric Williams	31 December 2017	TBD	Strategic plans are living documents. The CSD plan has undergone revisions since the lab review, but is still incomplete and in need of update. This will be a priority action item for CSD to complete.