

Program	Funded Year	Project Title	Principal Investigator(s)	Principal Investigator Affiliation	Internal or External Funding	Project Start Date	Project End Date	Total Allocation	External Financial Award Number (if assigned)
JTTI	FY16	Improving probabilistic forecasts of extreme rainfall through intelligent processing of high-resolution ensemble predictions	Russ Schumacher	Colorado State University	External	10/1/2016	9/30/2019	\$223,420	NA16OAR4590238
JTTI	FY16	Implementation of Advanced Multi-Sensor Analysis and Data Fusion Algorithms for Real-Time High-Resolution Quantitative Precipitation Estimation	Dong-Jun Seo Lin Tang	The University of Texas at Arlington; The University of Oklahoma	External	10/1/2016	9/30/2019	\$385,988	NA16OAR4590232 NA16OAR4590235
JTTI	FY16	Assessing the impact of assimilating ground-based infrared radiometer data into convective-scale numerical weather prediction models	Timothy Wagner	University of Wisconsin / CIMSS	External	10/1/2016	3/31/2020	\$342,157	NA16OAR4590241
JTTI	FY16	Development and Implementation of Probabilistic Hail Forecast Products using Multi-Moment Microphysics and Machine Learning Algorithms	Nathan Snook	The University of Oklahoma	External	10/1/2016	9/30/2019	\$335,084	NA16OAR4590239
JTTI	FY16	Improving Hydrologic Observing Capabilities with Stream Radars	Daniel Wasielewski Humberto Vergera-Arrieta	University of Oklahoma / CIMMS	External	10/1/2016	9/30/2019	\$591,902	NA16OAR4590234
JTTI	FY16	Quantifying Stochastic Forcing at Convective Scales	David Randall	Colorado State University	External	10/1/2016	9/30/2019	\$366,470	NA16OAR4590230
JTTI	FY16	Development of NWS convective scale ensemble forecasting capability through improving GSI-based hybrid ensemble-variational data assimilation and evaluating the multi-dynamic core approach	Xuguang Wang	The University of Oklahoma	External	10/1/2016	9/30/2020	\$449,205	NA16OAR4590236
JTTI	FY16	Accounting for non-Gaussianity in the background error distributions associated with cloud-related variables (microwave radiances and hydrometeors) in hybrid data assimilation for convective-scale prediction	Karina Apodaca	Colorado State University	External	10/1/2016	3/31/2020	\$304,677	NA16OAR4590233
JTTI	FY16	Demonstration of an Airborne Hyperspectral and Thermal Imaging System to Assess Convective Lifted Index	Steven Brooks	The University of Tennessee	External	10/1/2016	9/30/2018	\$365,590	NA16OAR4590231
JTTI	FY16	Assimilation of Remote Sensing Observations into Convective-scale NWP to Improve 0-6 h Probabilistic Forecasts of High Impact Weather	Nusrat Yussouf	University of Oklahoma / CIMMS	External	10/1/2016	9/30/2019	\$426,949	NA16OAR4590242
JTTI	FY16	Assimilation of Lake and Reservoir Levels into the WRF-Hydro National Water Model to Improve Operational Hydrologic Predictions	David Gochis Allen Burton Lynn Johnson	NCAR; NOAA/GLERL; Colorado State University / CIRA	External	10/1/2016	9/30/2019	\$494,991	NA16OAR4590229 NA16OAR4590240 NA16OAR4590237
JTTI	FY16	Operationalizing an Evaporative Demand Drought Index (EDDI) service for drought monitoring and early warning across CONUS	Robert Webb Roger Pulwarty Michael Hobbins	NOAA/ESRL/PSD; University of Colorado / CIRES	Internal	7/1/2016	6/30/2019	\$890,730	
JTTI	FY16	Upgrades and Improvements to MRMS	Kenneth Howard Jennifer Guillot	NOAA/OAR/NSSL; NOAA/NWS	Internal	8/1/2016	7/31/2019	\$1,774,063	
JTTI	FY17	Probabilistic precipitation rate estimates from ground-radar for hydrology	Pierre-Emmanuel Kirstetter	University of Oklahoma	External	8/1/2017	7/31/2020	\$387,220	NA17OAR4590170
JTTI	FY17	Assessing the Impact of Stochastic Cloud Microphysics in Convection-Resolving Models Using GOES-R Satellite Observations	Jason Otkin Gregory Thompson Fanyou Kong	University of Wisconsin / CIMSS; NCAR; University of Oklahoma	External	8/1/2017	7/31/2020	\$544,581	NA17OAR4590179 NA17OAR4590171 NA17OAR4590178
JTTI	FY17	Implementation of streamflow data assimilator for the National Water Model to improve water prediction and analysis	Seongjin Noh James McCreight	University of Texas-Arlington; NCAR	External	8/1/2017	7/31/2019	\$248,994	NA17OAR4590174 NA17OAR4590176
JTTI	FY17	Use of the Stochastic-dynamic Approach in a Single Dynamic-Core Storm-Scale Ensemble for Improved Spread and Reliability of QPF and Surface Variables	Isidora Jankov Judith Berner Joseph Olson	Colorado State University / CIRA; NCAR; CIRES	External	8/1/2017	7/31/2020	\$542,318	NA17OAR4590181 NA17OAR4590173 NA17OAR4590172
JTTI	FY17	Implementation of Multi-Radar Multi-Sensor Dual-Polarization Radar Synthetic QPE	Stephen Cocks	University of Oklahoma / CIMMS	External	8/1/2017	7/31/2020	\$343,377	NA17OAR4590177
JTTI	FY17	Forecast system development activities toward a convective-scale HRRR ensemble	Glen Romine	NCAR	External	8/1/2017	7/31/2020	\$530,134	NA17OAR4590182
JTTI	FY17	Multi-Sensor Merged Quantitative Precipitation Estimations for Improved Precipitation Coverage and Accuracy	Steven Martinaitis	University of Oklahoma / CIMMS	External	8/1/2017	7/31/2020	\$276,456	NA17OAR4590175
JTTI	FY17	Implementation of Nested Hyper-Resolution Modeling with Data Assimilation for the National Water Model	Dong-Jun Seo	University of Texas-Arlington	External	8/1/2017	7/31/2020	\$281,790	NA17OAR4590184
JTTI	FY17	Improvement of WRF-Hydro National Water Model architecture and calibration methods for semi-arid environments with complex terrain	Christopher Castro	University of Arizona	External	8/1/2017	7/31/2020	\$367,453	NA17OAR4590183
JTTI	FY17	Implementation of a three-dimensional hydrometeor classification algorithm within the Multi-Radar/Multi-Sensor system	Heather Reeves	University of Oklahoma / CIMMS	External	8/1/2017	7/31/2020	\$358,207	NA17OAR4590180
JTTI	FY17	FACETS: Developing operationally-ready Hazard Services-Probabilistic Hazard Information (PHI) for convective hazards	Tracy Hansen Kevin Manross	NOAA/OAR/ESRL/GSL	Internal	11/1/2017	10/31/2021	\$2,241,355	
JTTI	FY17	Forecast Guidance for Aviation Tactical Operations and Strategic Planning over Alaska	Judy Ghirardelli	NOAA/NWS/STI/DFSB	Internal	11/1/2017	10/31/2020	\$1,105,000	

JTTI	FY17	INSITE: Integrated Support for Impacted air Traffic Environments	Joshua Scheck	NOAA/NWS/NCEP	Internal	11/1/2017	12/31/2020	\$1,695,000	
JTTI	FY17	Extending the Rapidly-Updating Real-Time Mesoscale Analysis (RTMA) to Three Dimensions for Whole-Atmosphere Situational Awareness and Analysis of Record	Curtis Alexander	NOAA/OAR/ESRL/GSL	Internal	11/1/2017	10/31/2020	\$1,143,000	
JTTI	FY17	Improving the prediction of subseasonal global rainfall variability through the use of a scale-adaptive stochastic physics suite	Jian-Wen Bao	NOAA/OAR/ESRL/PSL; CIRES/University of Colorado	Internal	11/1/2017	8/31/2020	\$1,071,430	
JTTI	FY17	Improving the use of dropsondes in NOAA operations (HWRF)	Jason Sippel	AOML	Internal	11/1/2017	9/30/2019	\$306,996	
JTTI	FY18	Intelligent post-processing of convection-allowing model output to inform Weather Prediction Center outlooks and forecasts	Russ Schumacher	Colorado State University	External	9/1/2018	9/30/2022	\$366,479	NA18OAR4590378
JTTI	FY18	Advancing ADCIRC U.S. Atlantic and Gulf Coast Grids and Capabilities to Facilitate Coupling to the National Water Model in ESTOFS Operational Forecasting	Joannes Westerink	University of Notre Dame	External	10/1/2018	9/30/2021	\$344,161	NA18OAR4590377
JTTI	FY18	Accelerated Implementation, Testing and Evaluation of Optimized Radar Data Assimilation Capabilities within Ensemble-Variational Hybrid GSI for the NOAA Convection-allowing rapidly updated Forecasting System	Yongsun Jung Ming Xue Jeffrey Duda	University of Oklahoma; University of Colorado / CIRES ESRL/GSL	External	10/1/2018	9/30/2021	\$542,435	NA18OAR4590385 NA18OAR4590392
JTTI	FY18	Improving Convection-Permitting Ensemble Based Uncertainty Communication for Decision Support using the Weather Archive and Visualization Environment (WAVE)	Julie Demuth Melissa Petty Jennifer Henderson	NCAR; Colorado State University / CIRA; University of Colorado / CIRES	External	10/1/2018	9/30/2022	\$584,420	NA18OAR4590362 NA18OAR4590374 NA18OAR4590372
JTTI	FY18	Development and evaluation of extended range ensemble streamflow and water resources forecast products for the National Water Model	Andrew Wood Bart Nijsen	NCAR University of Washington	External	10/1/2018	9/30/2022	\$557,179	NA18OAR4590393 NA18OAR4590364
JTTI	FY18	Development and NWS Forecaster Evaluation of a Convective-scale Ensemble System for Probabilistic Heavy Rainfall and Severe Weather Forecasts	Nusrat Yussouf Michael Erickson	University of Oklahoma / CIMMS; University of Colorado / CIRES	External	10/1/2018	9/30/2021	\$417,289	NA18OAR4590361 NA18OAR4590384
JTTI	FY18	Improving Hail Forecasts Through Operational Implementation of the HAILCAST Hail Model	Rebecca Adams-Selin Tara Jensen Israel Jirak	AER; NCAR; NWS/SPC	External	10/1/2018	9/30/2021	\$229,943	NA18OAR4590388 NA18OAR4590382
JTTI	FY18	Improving the Quality of Water Forecasts via Bayesian Integration of Multiple Sources of Forecast Information	Edwin Welles	Deltares	External	10/1/2018	9/30/2021	\$404,363	NA18OAR4590370
JTTI	FY18	Implementation of an Accurate, Robust and Computationally Efficient Channel Routing Technique for the National Water Model (NWM)	Ehab Meselhe meselhe.e@gmail.com	Tulane University	External	10/1/2018	9/30/2021	\$403,044	NA18OAR4590394
JTTI	FY18	Implementing convective storm statistics from a large reanalysis of WSR-88D data for model verification and forecasting probabilistic uncertainty	Travis Smith	University of Oklahoma / CIMMS	External	9/1/2018	8/31/2021	\$591,848	NA18OAR4590386
JTTI	FY18	Inter-Office Collaboration Affecting Severe Weather Warning Services	Gregory Stumpf Alyssa Bates Darrel Kingfield Chris Golden Chen Ling	University of Oklahoma / CIMMS; University of Colorado / CIRES; University of Akron	External	10/1/2018	9/30/2021	\$236,795	NA18OAR4590373 NA18OAR4590368 NA18OAR4590375
JTTI	FY18	Implications of inconsistent visual displays on end user uncertainty, risk perception, and behavioral intentions	Andrew Grundstein	University of Georgia	External	10/1/2018	9/30/2022	\$178,203	NA18OAR4590366
JTTI	FY18	Improving Water Cycle Prediction in the National Water Model through Regional Calibration, Meteorological Forcing Improvements, and Coastal Coupling	Brad Cardinale Thomas Johengen johengen@umich.edu	CIGLR	External	10/1/2018	9/30/2022	\$549,408	NA18OAR4590363
JTTI	FY18	Making Sense of Uncertainty: Improving the Use of Hydrologic Probabilistic Information in Decision-Making	Rachel Carr	Nurture Nature Center	External	10/1/2018	9/30/2022	\$320,540	NA18OAR4590365
JTTI	FY18	Improving Operational Hail Prediction through Machine Learning from HREF and CAPS Storm-Scale Ensemble FV3 and WRF ARW Forecasts including Advanced Microphysics	Nathan Snook David Gagne	University of Oklahoma; NCAR	External	10/1/2018	9/30/2021	\$395,772	NA18OAR4590371 NA18OAR4590387
JTTI	FY18	Representing agricultural management processes in the National Water Model	Fei Chen Kristie Franz	NCAR Iowa State University	External	10/1/2018	9/30/2021	\$546,706	NA18OAR4590381 NA18OAR4590390
JTTI	FY18	Development and testing of displacement data assimilation	Thomas Nehrkorn	AER	External	10/1/2018	9/30/2021	\$410,945	NA18OAR4590383
JTTI	FY18	Improving subseasonal water supply prediction across the Western United States through assimilation of remotely sensed snow cover, snow albedo, and snow water equivalent in the NOAA National Water Model	Karl Rittger Aubrey Dugger Edward Bair	University of Colorado; NCAR; University of California Santa Barbara	External	10/1/2018	9/30/2021	\$412,419	NA18OAR4590367 NA18OAR4590379 NA18OAR4590380
JTTI	FY18	Assimilating Novel WSR-88D and GOES-16 Observations to Improve Convection-Allowing Model Forecasts of Convection Initiation and Severe Weather	David Stensrud	Pennsylvania State University	External	10/1/2018	9/30/2022	\$520,665	NA18OAR4590369
JTTI	FY18	Applying IBM Analytics to the Challenge of Broadcast Data	Kimberly Klockow-McClain	University of Oklahoma / CIMMS	External	10/1/2018	9/30/2022	\$462,121	NA18OAR4590360

JTTI	FY18	Communicating Forecast Uncertainty and Probabilistic Information: Experimenting with Social Observation Data in the Hazardous Weather Testbed	Carol Silva	University of Oklahoma	External	10/1/2018	9/30/2021	\$519,638	NA18OAR4590376
JTTI	FY18	Calibration of Channel Properties to Improve Streamflow Estimates in the National Water Model	Toby Minear	University of Colorado	External	10/1/2018	9/30/2020	\$468,833	NA18OAR4590391
JTTI	FY18	Generating Operational Guidelines for Use of Probabilistic Hazard Information (PHI) with End Users	Kodi Berry Holly Obermeier Kimberly Klockow-McClain	University of Oklahoma / CIMMS	External	10/1/2018	9/30/2021	\$384,391	NA18OAR4590389 NA18OAR4590359
JTTI	FY18	Advancing Frequently-Updating Storm-Scale Ensemble Data Assimilation and Prediction Towards Operations	Curtis Alexander	OAR/ESRL/GSL	Internal	7/1/2018	6/30/2021	\$1,926,000	
JTTI	FY18	VSAFE: Verification Services for Aviation Forecast Evaluation	Matt Wandishin	NOAA/NWS/NCEP	Internal	7/1/2018	6/30/2021	\$650,000	
JTTI	FY18	Optimizing Geostationary Lightning Mapper Use in AWIPS	Scott Rudlosky	NESDIS/STAR	Internal	7/1/2018	6/30/2021	\$1,240,955	
JTTI	FY18	Using HYSPLIT ensemble dispersion modeling for forecasting applications	Barbara Stunder Alice Crawford	OAR/ARL	Internal	7/1/2018	6/30/2022	\$433,500	
JTTI	FY18	FACETS: Advancing physical and social science concepts toward operational implementation of Probabilistic Hazard Information	Alan Gerard	OAR/NSSL	Internal	7/1/2018	6/30/2022	\$2,250,000	
JTTI	FY18	Adding TC Genesis Verification Capabilities to the Model Evaluation Tools - TC Software	Daniel Halperin	Embry-Riddle	External	9/1/2018	8/31/2022	\$208,722	NA18NWS4680066
JTTI	FY18	Development and Evaluation of new Statistical Calibration Methods for Multi-Model Ensemble Weeks 3-4 Probabilistic Forecasts	Nicolas Vigaud Andrew Robertson	Columbia University	External	9/1/2018	8/31/2022	\$377,187	NA18NWS4680067
JTTI	FY18	The Impact of Ocean Resolution in the Unified Forecast System (UFS) on the subseasonal forecast of extreme hydrological events	Cristiana Stan	George Mason University	External	9/1/2018	8/31/2021	\$278,850	NA18NWS4680069
JTTI	FY19	Enhanced Multi-Radar Multi-Sensor Dual-Polarization Radar Synthetic QPE	Stephen Cocks	University of Oklahoma / CIMMS	External	9/1/2019	8/31/2022	\$298,861	NA19OAR4590237
JTTI	FY19	Hazard Services: National Center Evolve	Nathan Hardin Taylor Trogdon	Colorado State University / CIRA; ESRL/GSL	External	9/1/2019	8/31/2023	\$472,010	NA19OAR4590228
JTTI	FY19	Development and Testing of a GSI-based Multi-Scale EnKF System for Convection-Allowing Stand-Alone Regional FV3	Youngsun Jung Ming Xue	University of Oklahoma	External	9/1/2019	8/31/2022	\$402,481	NA19OAR4590236
JTTI	FY19	End User Understanding of Uncertainty in Higher Spatial and Temporal Hazardous Weather Forecasts	Daphne LaDue	University of Oklahoma	External	9/1/2019	8/31/2023	\$207,142	NA19OAR4590238
JTTI	FY19	Enhancing the variational bias correction method to support the assimilation of satellite all-sky infrared brightness temperatures	Jason Otkin	University of Wisconsin / CIMSS	External	9/1/2019	8/31/2022	\$473,954	NA19OAR4590240
JTTI	FY19	Advancing Forecast Verification Efforts for Unified Forecast System Advanced Physics Testing using Spatial Verification Methods	Jason Otkin Tara Jensen Patrick Skinner	University of Wisconsin / CIMSS; NCAR; University of Oklahoma / CIMMS	External	9/1/2019	8/31/2022	\$567,412	NA19OAR4590233 NA19OAR4590234 NA19OAR4590235
JTTI	FY19	Estimating Inundation Extent and Depth from National Water Model Outputs and High Resolution Topographic Data	Paola Passalacqua	University of Texas-Austin	External	9/1/2019	8/31/2022	\$371,879	NA19OAR4590229
JTTI	FY19	Enhancing the prediction of landfalling hurricanes through improved data assimilation with the GSI-based ensemble-variational hybrid system and JEDI	Zhaoxia Pu	University of Utah; University of Miami	External	9/1/2019	8/31/2022	\$311,299	NA19OAR4590239
JTTI	FY19	Laying the foundation for ensemble prediction and probabilistic hazard tool development for winter weather	Heather Reeves	University of Oklahoma / CIMMS	External	9/1/2019	8/31/2022	\$382,376	NA19OAR4590230
JTTI	FY19	Enhanced tools for high-resolution ensemble development and verification	Glen Romine	NCAR; ESRL/GSL	External	9/1/2019	8/31/2022	\$571,997	NA19OAR4590232
JTTI	FY19	Advancing the Direct Assimilation of Radar Observations to Improve Convective Scale Numerical Weather Prediction through Optimizing the Combined Use of Static and Ensemble Covariances, the Additive Perturbations, and the Assimilation Frequency in the Hybrid EnVar and through Integration with JEDI	Xuguang Wang	University of Oklahoma	External	9/1/2019	8/31/2023	\$523,163	NA19OAR4590231
JTTI	FY20	Use of Ocean Stability Data and Machine Learning to Improve Tropical Cyclone Situational Awareness and NHC Statistical-Dynamical Intensity Guidance	Galina Chirokova Gregory Foltz	CIRA/Colorado State University; NOAA/AOML	External	9/1/2020	8/31/2023	\$398,639	NA20OAR4590353
JTTI	FY20	Generating Storm Surge Hazards using Hazard Services	Nathan Hardin Taylor Trogdon	CIRA/Colorado State University; NOAA/ESRL/GSL	External	9/1/2020	8/31/2023	\$373,704	NA20OAR4590344
JTTI	FY20	Communicating Forecast Uncertainty and Probabilistic Information: Expanding and Embedding Social and Behavioral Data in National Weather Service Operations	Joseph Ripberger	University of Oklahoma	External	9/1/2020	8/31/2023	\$478,312	NA20OAR4590345
JTTI	FY20	Applications of METplus to Subseasonal Climate Outlooks, Multi-Model Ensembles, Process Studies, and Extremes	Tara Jensen	NCAR NOAA/NWS/CPC	External	9/1/2020	8/31/2022	\$487,858	NA20OAR4590346
JTTI	FY20	Deep Learning for Operational Identification and Prediction of Synoptic-Scale Fronts	Amy McGovern John Allen	University of Oklahoma; Central Michigan University	External	9/1/2020	8/31/2023	\$333,952	NA20OAR4590347

JTTI	FY20	Integration of a road temperature analysis and forecast into NWS operations	Heather Reeves Joshua Kastman Kirstin Harnos Dana Tobin	CIMMS/University of Oklahoma; CIRES/University of Colorado	External	9/1/2020	8/31/2023	\$336,861	NA20OAR4590348 NA20OAR4590349
JTTI	FY20	Generating calibrated forecast guidance for severe weather beyond day 1	Russ Schumacher	CIRA/Colorado State University	External	9/1/2020	8/31/2023	\$433,209	NA20OAR4590350
JTTI	FY20	Expanding Chemical Data Assimilation System to Support NOAA Unified Forecast System	Youhua Tang Tianfeng Chai Mariusz Pagowski	CISS/University of Maryland; CIRES/University of Colorado	External	9/1/2020	8/31/2023	\$559,494	NA20OAR4590351 NA20OAR4590352
JTTI	FY20	Products to Guide Impact-Based Flash Flood Warnings in the National Weather Service	Humberto Vergara	CIMMS/University of Oklahoma; NOAA/OAR/NSSL	External	9/1/2020	8/31/2023	\$570,664	NA20OAR4590354
JTTI	FY20	Winter Storm Severity Index: Improving Storm Readiness through Severity and Social Impact Forecasting	Rachel Hogan-Carr	Nurture Nature Center; East Carolina University	External	9/1/2020	8/31/2023	\$244,044	NA20OAR4590355
JTTI	FY20	0-3 hour tornado prediction using the Warn on Forecast System and machine learning	Nathan Snook DJ Gagne	University of Oklahoma; NCAR	External	9/1/2020	8/31/2023	\$517,038	NA20OAR4590356 NA20OAR4590357
JTTI	FY20	Flow-dependent machine learning based post-processing of convection allowing ensembles to provide convective outlooks of severe weather hazards	Aaron Johnson	University of Oklahoma	External	9/1/2020	8/31/2023	\$488,851	NA20OAR4590358
JTTI	FY20	Improving land-surface flux partitioning in operational short range forecasts through integration of NOAA weather and water models	David Gochis Terra Ladwig Jason English	NCAR University of Colorado	External	9/1/2020	8/31/2023	\$485,381	NA20OAR4590360 NA20OAR4590359
JTTI	FY20	Combining A Fuzzy Clustering Approach With the National Blend of Models (NBM) to Facilitate Scenario-Driven Products for Extreme Weather	Brian Colle	Stony Brook University	External	9/1/2020	8/31/2023	\$237,929	NA20OAR4590361
JTTI	FY20	Enhancement of Radiation Coupling to Cloud Microphysics and Land Surface Properties for Global Weather Predictions	Michael Iacono Greg Thompson	AER; NCAR	External	9/1/2020	8/31/2022	\$496,287	NA20OAR4590362 NA20OAR4590363
JTTI	FY21	Enhancements to the RTE+RRTMGP Radiation Code in Support of NOAA Operational Forecasts	Eli Mlawer	AER	External	8/1/2021	7/31/2023	\$411,779	NA21OAR4590161
JTTI	FY21	Towards the enhancement of post-processed precipitation-type guidance with the Spectral Bin Classifier	Andrew Rosenow	CIMMS/University of Oklahoma	External	8/1/2021	7/31/2023	\$317,822	NA21OAR4590162
JTTI	FY21	Adapting machine learning-based convective hazard guidance to use the HRRR/RRFS	Ryan Sobash	NCAR	External	8/1/2021	7/31/2023	\$575,846	NA21OAR4590163
JTTI	FY21	Unification and Improvements to Guidance for National Weather Service Tropical Cyclone Wind and Storm Surge Hazard Products	Andrea Schumacher	CIRA/Colorado State University	External	8/1/2021	7/31/2023	\$353,327	NA21OAR4590164
JTTI	FY21	Direct Assimilation of GOES-R Geostationary Lightning Mapper (GLM) Data within JEDI Hybrid System for Operational UFS Convection-Allowing Predictions	Ming Xue Amanda Back	University of Oklahoma CIRA/Colorado State University	External	8/1/2021	7/31/2023	\$536,518	NA21OAR4590165 NA21OAR4590166
JTTI	FY21	Advancing Land Modeling Infrastructure in the UFS for Hierarchical Model Development	Rocky Dunlap	NCAR	External	8/1/2021	7/31/2023	\$595,766	NA21OAR4590167
JTTI	FY21	Advancing the Use of Multivariate Object-Based Verification Methods in Regional-Scale Models	Jason Otkin	CIMSS/University of Wisconsin	External	8/1/2021	7/31/2023	\$381,882	NA21OAR4590168
JTTI	FY21	Advancing Ensemble Subseasonal Forecasting with Machine Learning	Judah Cohen Dara Entekhabi	AER Massachusetts Institute of Technology	External	8/1/2021	7/31/2023	\$599,781	NA21OAR4590169 NA21OAR4590170
JTTI	FY21	Implementation, Testing, and Evaluation of Radar Data Assimilation Capabilities within the JEDI Hybrid EnVar System for the Rapid Refresh Forecast System	Chengsi Liu Jeffrey Duda	University of Oklahoma CIRES/University of Colorado	External	8/1/2021	7/31/2023	\$594,683	NA21OAR4590171 NA21OAR4590172
JTTI	FY21	Enhancing the Storm Prediction Center's Convective Outlook with Continuous Probabilities and Conditional Intensity Forecasts	Joseph Ripberger	University of Oklahoma	External	8/1/2021	7/31/2023	\$267,602	NA21OAR4590173
JTTI	FY21	Enhancing Feature Driven Evaluation of High Impact Hydrometeorology Events through METplus	Tara Jensen Michael Erickson	NCAR CIRES/University of Colorado	External	8/1/2021	7/31/2023	\$426,644	NA21OAR4590174 NA21OAR4590175
JTTI	FY21	Medium-range excessive rainfall forecasts with machine learning models	Russ Schumacher	CIRA/Colorado State University	External	8/1/2021	7/31/2023	\$338,943	NA21OAR4590187
JTTI	FY21	Leveraging artificial intelligence to statistically postprocess GEFS ensemble forecasts for Week 3-4 Outlooks of precipitation probabilities for the CPC	Rochelle Worsnop	CIRES/University of Colorado	External	12/1/2021	11/31/2023	\$370,119	NA21OAR4590176
JTTI	FY21	An Optimized Lake-Treatment Strategy for Improved Land-Surface Modeling and Weather Prediction in the Unified Forecast System (UFS)	Andrew Gronewold David Yates Tatiana Smirnova	University of Michigan NCAR CIRES/University of Colorado	External	8/1/2021	7/31/2023	\$499,936	NA21OAR4590177 NA21OAR4590178 NA21OAR4590179
JTTI	FY21	Adapting and ingesting the operational National Blend of Models (NBM) product suite for use in the operational NOAA National Water Model	David Gochis	NCAR	External	8/1/2021	7/31/2023	\$371,533	NA21OAR4590180
JTTI	FY21	Integration of Model Large-Scale Environmental Diagnostics for Tropical Cyclones into the MET-TC Verification Package	Kate Musgrave Paul Kucera	CIRA/Colorado State University NCAR	External	8/1/2021	7/31/2023	\$492,749	NA21OAR4590181 NA21OAR4590182

JTTI	FY21	Winter Storm Severity Index for Alaska	Kirstin Harnos Dana Tobin Rachel Hogan Carr	CIRES/University of Colorado Nature Nurture Center	External	8/1/2021	7/31/2023	\$192,594	NA21OAR4590188 NA21OAR4590183
JTTI	FY21	Improving numerical weather forecasting and S2S prediction with the NCEP Unified Forecast System through strongly coupled land-atmosphere data assimilation using JEDI	Zhaoxia Pu	University of Utah	External	8/1/2021	7/31/2023	\$334,693	NA21OAR4590160
JTTI	FY21	Diagnosing synoptic progressiveness forecast errors within the UFS MRWA	Glen Romine	NCAR	External	8/1/2021	7/31/2023	\$552,819	NA21OAR4590184
JTTI	FY21	Post-Processing of CMAQ forecast for Improving Air Quality Predictions	Stefano Alessandrini Irina Djalalova	NCAR CIRES/University of Colorado	External	8/1/2021	7/31/2023	\$586,871	NA21OAR4590185 NA21OAR4590186
JTTI	FY22	Evaluating Alternative Risk Communication Strategies for the Storm Prediction Center's Convective Outlook	Patrick Marsh	NOAA/NWS/NCEP/SPC	Internal	5/1/2022	4/30/2025	\$489,820	
JTTI	FY22	Accelerating transition to JEDI ensemble solvers for coupled data assimilation in the GEFS system	Sergey Frolov	OAR/PSL	Internal	5/1/2022	4/30/2025	\$1,500,000	
JTTI	FY22	Hazard Services: Modernizing Weather Prediction Center, Ocean Prediction Center, National Hurricane Center/Tropical Analysis and Forecasting Branch, and Honolulu Weather Forecast Office Workflows	Nathan Hardin	OAR/GSL	Internal	5/1/2022	4/30/2025	\$1,260,000	
JTTI	FY22	Transition and evaluation of Snow-to-Liquid Ratio algorithms into the Unified Post Processor for UFS medium range and short range applications	Hui-Ya Chuang	NOAA/NWS/NCEP/EMC	Internal	5/1/2022	4/30/2025	\$600,000	
JTTI	FY22	Further Development of the Unified Gravity Wave Physics Suite for the UFS	Joseph Olson	OAR/GSL	Internal	5/1/2022	4/30/2025	\$825,000	
JTTI	FY22	The Continued Evolution of Severe Weather Warnings through Threats-in-Motion	Kodi Berry	OAR/NSSL	Internal	5/1/2022	4/30/2025	\$1,490,193	
JTTI	FY22	Transitioning Critical MET Supported Software to Operations at the Weather Prediction Center	James Nelson	NOAA/NWS/NCEP/WPC	Internal	5/1/2022	4/30/2025	\$1,371,000	
JTTI	FY22	Operationalizing the computation and dissemination of the Evaporative Demand Drought Index (EDDI) and value-added products for CONUS-wide drought monitoring and early warning at the NOAA-Climate Prediction Center	Mimi Hughes	OAR/PSL	Internal	5/1/2022	4/30/2024	\$317,301	
JTTI	FY22	Transitioning Bayesian Joint Probability (BJP) Calibration of Week 3-4 Predictions to Operations	Dan Collins	NOAA/NWS/NCEP/CPC	Internal	5/1/2022	4/30/2024	\$410,000	
JTTI	FY22	Transitioning HYSPLIT to Operations	Alice Crawford	OAR/ARL	Internal	5/1/2022	4/30/2025	\$606,000	
JTTI	FY22	Atmospheric Composition Data Assimilation for the Unified Forecast System (UFS) on Global and Regional Scales	Cory Martin	NOAA/NWS/NCEP/EMC	Internal	5/1/2022	4/30/2025	\$1,263,860	
JTTI	FY22	Transitioning Weather-Aware Rapid Refresh Emission Modeling Capability (WAR2-EMC) to Support National Air Quality Forecast Capability Operations	Bok Baek	GMU	External	9/1/2022	8/31/2025	\$598,383	NA22OAR4590167
JTTI	FY22	Deep Learning Hybrid Dynamical-statistical model for US Precipitation Subseasonal Forecasting	Hyemi Kim	Stony Brook Univ.	External	9/1/2022	8/31/2025	\$514,775	NA22OAR4590168
JTTI	FY22	Creation and evaluation of a CONUS-wide gridded analysis-of-record for ice accumulation	Heather Reeves	University of Oklahoma / CIMMS	External	9/1/2022	8/31/2025	\$422,432	NA22OAR4590169
JTTI	FY22	Expanding Audiences, Removing Barriers, Promoting Action: Addressing the diverse needs of audiences for flood forecast information	Rachel Hogan Carr	Nurture Nature Center, Inc.	External	9/1/2022	8/31/2025	\$266,045	NA22OAR4590170
JTTI	FY22	Probabilistic Prediction of Thunderstorm Hazards using the NOAA Warn-on-Forecast System and Machine Learning	Montgomery Flora	University of Oklahoma	External	9/1/2022	8/31/2024	\$493,222	NA22OAR4590171
JTTI	FY22	Implementation of a Unified Workflow for the Unified Forecast System (UFS) Short Range Weather (SRW) Application	Christina Holt	CIRES	External	9/1/2022	8/31/2025	\$630,131	NA22OAR4590172
JTTI	FY22	Advancement of background ensemble covariance at the air-sea interface toward the UFS HAFS fully coupled data assimilation	Xuguang Wang Jun Zhang	Univ. of OK Univ. of Miami	External	9/1/2022	8/31/2025	\$848,536	NA22OAR4590173 NA22OAR4590174
JTTI	FY22	Implementation of an Ensemble Sensitivity Tool to Better Assess Uncertainty in Mid-Latitude Extreme Weather Forecasts	Brian Colle William Lamberson	Stony Brook Univ. CIRES	External	9/1/2022	8/31/2025	\$501,773	NA22OAR4590175 NA22OAR4590176
JTTI	FY22	A Scale-Aware Three-Dimensional Sub-Grid Scale Turbulent Mixing Parameterization for the Hurricane Analysis and Forecast System	Ping Zhu Jun Zhang	Florida Int. Univ. Univ. of Miami	External	9/1/2022	8/31/2025	\$840,375	NA22OAR4590177 NA22OAR4590178
JTTI	FY22	A Wind-Wave-Current Data Assimilation Scheme for the 3D-Real Time Mesoscale Analysis	Malaquias Peña	Univ. of CT	External	9/1/2022	8/31/2025	\$899,795	NA22OAR4590179
JTTI	FY22	Advanced Coupling Evaluation Metrics in METplus for UFS Land Surface Models	Scott Miller Andrew Newman	SUNY Albany NCAR	External	9/1/2022	8/31/2025	\$892,007	NA22OAR4590180 NA22OAR4590181
JTTI	FY22	Multi-institution Collaborative Proposal: Integration of a Fully Functional Atmospheric UFS-HASFS into JEDI with Weakly Coupled Ocean Data Assimilation Capability	Altug Aksoy Xuguang Wang Jonathan Poterjoy	Univ. of Miami Univ. of OK Univ. of MD	External	9/1/2022	8/31/2025	\$897,506	NA22OAR4590182 NA22OAR4590183 NA22OAR4590184

JTTI	FY22	Effectively Communicating Uncertainty in Tropical Cyclone Intensity Forecasts	Daniel Halperin Deanna Sellnow	Embry-Riddle Aeronautical Univ. Univ. of Cental Florida	External	9/1/2022	8/31/2024	\$266,706	NA22OAR4590185 NA22OAR4590186
JTTI	FY22	A Weather-Ready Nation Para Todos: Evaluating Current Practices in Communicating Hazardous Weather Risks to Spanish Speakers	Justin Reedy	Univ. of OK	External	9/1/2022	8/31/2025	\$767,707	NA22OAR4590187
JTTI	FY22	Advancing the Lake-Coupling Techniques for the Unified Forecast System (UFS)	Christiane Jablonowski	Univ. of MI	External	9/1/2022	8/31/2025	\$779,133	NA22OAR4590188
HWT	FY15	Convection-Permitting Ensemble Forecast System for Prediction of Extreme Weather	Glen Romine Michael Coniglio	NCAR; University of Oklahoma / CIMMS	External	9/1/2015	8/31/2018	\$247,208	NA15OAR4590191 NA15OAR4590189
HWT	FY15	Developing and Evaluating GSI-based EnKF-Variational Hybrid Data Assimilation for NCEP NAMRR to Improve Convection-Allowing Hazardous Weather Forecast	Xuguang Wang	University of Oklahoma	External	9/1/2015	8/31/2019	\$247,445	NA15OAR4590193
HWT	FY15	Improving Initial Conditions and their Perturbations through Ensemble-Based Data Assimilation for Optimized Storm-Scale Ensemble Prediction in Support of HWT Severe Weather Forecasting	Ming Xue	University of Oklahoma	External	9/1/2015	8/31/2018	\$249,705	NA15OAR4590186
HWT	FY15	Information Extraction and Verification of Convection-Allowing Models for Severe Hail Forecasting	Israel Jirak	NWS/SPC	External	9/1/2015	8/31/2018	\$209,065	NA15OAR4590192
HWT	FY15	Integration and Evaluation of ProbSevere within the Probabilistic Hazard Information (PHI) Tool in the Hazardous Weather Testbed	Kristin Calhoun Wayne Feltz Lans Rothfus Michael Pavolonis	University of Oklahoma / CIMMS University of Wisconsin-Madison / CIMSS NSSL; NESDIS	External	9/1/2015	8/31/2018	\$226,829	NA15OAR4590187 NA15OAR4590188
HWT	FY17	Demonstration of a Rapid Update Convection-Permitting Ensemble Forecast System to Improve Hazardous Weather Prediction	Glen Romine	NCAR	External	7/1/2017	6/30/2020	\$285,593	NA17OAR4590114
HWT	FY17	Integration of Multi-Radar Multi-Sensor Azimuthal Shear into a CONUS Conditional Probability of Tornado Intensity Product in the Hazardous Weather Testbed	Matthew Mahalik Brandon Smith Alan Gerard	University of Oklahoma / CIMMS NSSL	External	7/1/2017	6/30/2020	\$149,151	NA17OAR4590115
HWT	FY17	Improving NWS Convection Allowing Hazardous Weather Ensemble Forecasts through Optimizing Multi-Scale Initial Condition (IC) Perturbations	Xuguang Wang	University of Oklahoma / CIMMS	External	7/1/2017	6/30/2021	\$277,184	NA17OAR4590116
HWT	FY17	Evaluating stochastic physics approaches within select Convection Allowing Model (CAM) members included in the Community Leveraged Unified Ensemble (CLUE) during the Hazardous Weather Testbed (HWT) Spring Experiment	Jamie Wolff Isidora Jankov	NCAR Colorado State University / CIRA	External	7/1/2017	6/30/2020	\$297,391	NA17OAR4590117 NA17OAR4590118
HWT	FY17	Developing an objective evaluation scorecard for storm scale prediction	Tara Jensen	NCAR	External	7/1/2017	6/30/2020	\$298,703	NA17OAR4590119
HWT	FY17	Development and Optimization of Radar-Assimilating Ensemble-Based Data Assimilation for Storm-Scale Ensemble Prediction in Support of HWT Spring Experiments	Ming Xue	University of Oklahoma	External	7/1/2017	6/30/2019	\$290,837	NA17OAR4590186
HWT	FY17	Improving the design and utility to severe weather forecasters of convection permitting ensembles through application of a probabilistic object-based post-processing and verification technique	Aaron Johnson	University of Oklahoma	External	7/1/2017	6/30/2021	\$226,163	NA17OAR4590187
HWT	FY19	Using convective mode information for hazard prediction with convection-allowing models	Ryan Sobash	NCAR	External	7/1/2019	6/30/2023	\$731,555	NA19OAR4590128
HWT	FY19	Implementation and testing of stochastic perturbations within a stand-alone regional (SAR) FV3 ensemble using the Common Community Physics Package (CCPP)	Jeff Beck Jamie Wolff	Colorado State University / CIRA NCAR	External	7/1/2019	6/30/2023	\$749,985	NA19OAR4590130 NA19OAR4590131
HWT	FY19	Improved Diagnosis of Severe Wind Occurrence through Machine Learning	William Gallus	Iowa State University	External	7/1/2019	6/30/2023	\$652,194	NA19OAR4590133
HWT	FY19	Improving National Weather Service Convection Allowing Hazardous Weather Prediction by Using a Cost-Effective Large Background Ensemble in a Regional FV3 Hybrid EnVar Data Assimilation System	Xuguang Wang	University of Oklahoma	External	7/1/2019	6/30/2023	\$685,223	NA19OAR4590138
HWT	FY19	Assessing Increased Vulnerability Knowledge and High Temporal Resolution Guidance on Forecaster and Emergency Manager Decision Making	Jack Friedman Daphne LaDue	University of Oklahoma	External	7/1/2019	6/30/2023	\$698,293	NA19OAR4590139
HWT	FY22	Informing UFS-based Rapid Refresh Forecast System (RRFS) ensemble development through evaluation of analysis uncertainty representation methods- Hazardous Weather Testbed	Jeff Beck Jamie Wolff Craig Schwartz Xuguang Wang Aaron Johnson	Colorado State University / CIRA; NCAR; University of Oklahoma	External	8/1/2022	7/31/2025	\$531,452	NA22OAR4590526 NA22OAR4590524
HWT	FY22	Bridging Watch-to-Warning Forecast Operations with Refined Probabilistic Guidance- Hazardous Weather Testbed	Eric Loken Katie Wilson Kristin Calhoun Thea Sandmael	University of Oklahoma; NSSL	External	8/1/2022	7/31/2025	\$536,214	NA22OAR4590530

HWT	FY22	Probabilistic medium-range hazards guidance with an FV3-based convection-allowing ensemble and machine learning - Hazardous Weather Testbed	Craig Schwartz Ryan Sobash Lucas Harris	NCAR GFDL	External	8/1/2022	7/31/2025	\$737,258	NA22OAR4590533
HMT	FY15	Assessment of Gridded Hydrological Modeling for NWS Flash Flood Operations	Lynn Johnson James Halgren	Colorado State University; Riverside Technology Inc.	External	9/1/2015	8/31/2017	\$249,682	NA15OAR4590152 NA15OAR4590151
HMT	FY15	Demonstration of Advanced Ensemble Prediction Services for NWS Hydrometeorological Forecast Operations	David Gochis Rob Cifelli	NCAR; NOAA/OAR/ESRL	External	9/1/2015	8/31/2017	\$249,999	NA15OAR4590157
HMT	FY15	Multi-Radar/Multi-Sensor (MRMS) HMT-Hydro Experiment	Jonathan Gourley	University of Oklahoma / CIMMS NSSL	External	9/1/2015	8/31/2018	\$247,750	NA15OAR4590158
HMT	FY15	Storm-Scale Ensemble Prediction Optimized for Heavy Precipitation Forecasting in Support of the Hydrometeorology Testbed (HMT)	Ming Xue	University of Oklahoma	External	9/1/2015	8/31/2017	\$239,700	NA15OAR4590159
HMT	FY15	Validation and Improvement of Microphysical Parameterizations for Better Orographic Precipitation Forecasts	David Kingsmill	University of Colorado / CIRES	External	9/1/2015	8/31/2018	\$249,702	NA15OAR4590160
HMT	FY17	Demonstration of a Rapid Update Convection-Permitting Ensemble Forecast System to Improve Flash Flood and Winter Weather Prediction	Glen Romine	NCAR	External	7/1/2017	6/30/2020	\$293,080	NA17OAR4590122
HMT	FY17	Convection-Allowing Ensemble Prediction for Heavy Precipitation in Support of the Hydrometeorology Testbed (HMT): New QPF Products, Data Assimilation Techniques and Prediction Model	Ming Xue	University of Oklahoma	External	7/1/2017	6/30/2019	\$289,961	NA17OAR4590120
HMT	FY17	Enabling Effective Use of Deterministic-to-Probabilistic Precipitation Forecasts for Heavy and Extreme Events	Tara Jensen	NCAR	External	7/1/2017	6/30/2020	\$299,074	NA17OAR4590128
HMT	FY17	Improving Lake-Effect Snow and Ice Forecasting for the Great Lakes Region	Philip Chu	CIGLR GLERL	External	7/1/2017	6/30/2019	\$299,091	NOAA-OAR-OWAQ-2017-2005004
HMT	FY17	Assessment of Hydrologic Forecasts Generated Using Multi-Model and Multi-Precipitation Product Forcing	Witold Krajewski	University of Iowa	External	7/1/2017	7/31/2019	\$251,357	NA17OAR4590131
HMT	FY17	Comparison of Model versus Observationally-Driven Water Vapor Profiles for Forecasting Heavy Precipitation Events	John Forsythe	Colorado State University / CIRA	External	7/1/2017	6/30/2020	\$267,429	NA17OAR4590121
HMT	FY17	Probabilistic Warm-on-Forecast System for Heavy Rainfall and Flash Flooding	Steven Martinaitis Jonathan Gourley	University of Oklahoma / CIMMS; NOAA/OAR/NSSL	External	10/1/2017	9/30/2020	\$236,052	NA17OAR4590281
HMT	FY17	Quantifying Observational Requirements for WRF-Hydro Forcing in the West Using Russian River HMT Experience and Data to Inform National Water Center Tools	Fred Ralph	University of California San Diego / CIME	External	7/1/2017	6/30/2021	\$299,883	NA17OAR4590185
HMT	FY19	Advancing Probabilistic Prediction of High-Impact Winter Storms through Ensemble NWP and Post-Processing	Justin Minder James Steenburgh	SUNY Albany; University of Utah	External	7/1/2019	6/30/2023	\$619,602	NA19OAR4590136 NA19OAR4590137
HMT	FY19	Improving Lake-Effect Snow Forecasting Capabilities via Advanced Coupling Techniques in NOAA's Unified Forecast System (UFS)	Christiane Jablonowski Philip Chu	University of Michigan - CIGLR; GLERL	External	7/1/2019	6/30/2023	\$750,000	NA19OAR4590140
HMT	FY19	Enhancing CAM Ensemble Forecast System and Improving Ensemble Forecast Products in Support of HMT Winter Weather and Heavy Precipitation Forecasting	Keith Brewster	University of Oklahoma	External	7/1/2019	6/30/2023	\$748,286	NA19OAR4590141
HMT	FY22	Advancing Probabilistic Prediction of Snow-to-Liquid Ratio and Snowfall during High-Impact Winter Storms- Hydrometeorology Testbed	W. James Steenburgh Peter G. Veals	University of Utah	External	8/1/2022	7/31/2025	\$385,065	NA22OAR4590531
HMT	FY22	Developing the "Next-Generation" Winter Weather Experiment Testbed: Integrating Road Hazards- Hydrometeorology Testbed	Dana Tobin	University of Oklahoma; University of Colorado; NWS WPC	External	8/1/2022	7/31/2025	\$445,147	NA22OAR4590529
HMT	FY22	FV3-LAM CAM Ensemble Forecast System and Improving Ensemble Probabilistic and Consensus Forecast Products in Support of HMT Winter Weather and Heavy Precipitation Forecasting- Hydrometeorology Testbed	Keith Brewster Nathan Snook Timothy Supinie	University of Oklahoma	External	8/1/2022	7/31/2025	\$747,173	NA22OAR4590522
JHT	FY15	Probabilistic prediction of tropical cyclone rapid intensification using satellite passive microwave imagery	Chris Rozoff	University of Wisconsin / CIMSS	External	9/1/2015	8/31/2018	\$180,800	NA15OAR4590205
JHT	FY15	Improvements in Operational Statistical Tropical Cyclone Forecast Models	Galina Chirokova	Colorado State University / CIRA	External	9/1/2015	8/31/2018	\$168,380	NA15OAR4590204
JHT	FY15	Improved Eyewall Replacement Cycle Forecasting Using a Modified Microwave-Based Algorithm (ARCHER)	Anthony Wimmers	University of Wisconsin / CIMSS	External	9/1/2015	8/31/2018	\$80,299	NA15OAR4590197
JHT	FY15	Improvement and Implementation of the Probability-based Microwave Ring Rapid Intensification Index for NHC/JTWC Forecast Basins	Haiyan Jiang Kate Musgrave	Florida International University; Colorado State University / CIRA	External	9/1/2015	8/31/2018	\$187,494	NA15OAR4590199 NA15OAR4590200
JHT	FY15	Guidance on Observational Undersampling over the Tropical Cyclone Lifecycle	David Nolan Eric Uhlhorn	University of Maryland; NOAA/OAR/AOML	External	9/1/2015	8/31/2018	\$136,791	NA15OAR4590203
JHT	FY15	Passive Microwave Data Exploitation via the NRL Tropical Cyclone Webpage	Richard Bankert	Naval Research Laboratory	External	9/17/2015	9/30/2017	\$180,144	

JHT	FY15	Improvement to the Tropical Cyclone Genesis Index (TCGI)	Jason Dunion Andrea Schumacher John Kaplan Josh Cossuth	University of Maryland; Colorado State University / CIRA; NOAA/OAR/AOML; Naval Research Laboratory	External	9/1/2015	8/31/2018	\$217,785	NA15OAR4590201 NA15OAR4590202
JHT	FY15	Transition of the Coastal and Estuarine Storm Tide Model to an Operational Model for Forecasting Storm Surges	Keqi Zhang	Florida International University	External	9/1/2015	2/28/2019	\$268,399	NA15OAR4590198
JHT	FY17	Improvements and extensions to an existing probabilistic genesis forecast tool using an ensemble of global models	Robert Hart	Florida State University	External	7/1/2017	6/30/2020	\$149,883	NA17OAR4590141
JHT	FY17	Improvements to Operational Statistical Tropical Cyclone Intensity Forecast Models using Wind Structure and Eye Predictors	Galina Chirokova John Kaplan	Colorado State University / CIRA NOAA/OAR/AOML	External	8/1/2017	7/31/2020	\$174,265	NA17OAR4590138
JHT	FY17	Evolutionary Programming for Probabilistic Tropical Cyclone Intensity Forecasts	Paul Roebber	University of Wisconsin-Milwaukee	External	7/1/2017	6/30/2020	\$199,527	NA17OAR4590137
JHT	FY17	Ensemble-based Pre-genesis Watches and Warnings for Atlantic and North Pacific Tropical Cyclones	Russell Elsberry	University of Colorado-Colorado Springs	External	7/1/2017	6/30/2020	\$107,007	NA17OAR4590139
JHT	FY17	Transition of Machine-Learning Based Rapid Intensification Forecasts to Operations	Andrew Mercer	Mississippi State University Northern Gulf Institute	External	7/1/2017	6/30/2020	\$203,373	NA17OAR4590140
JHT	FY17	Estimation of Tropical Cyclone Intensity Using Satellite Passive Microwave Observations	Haiyan Jiang	Florida International University	External	7/1/2017	6/30/2021	\$199,773	NA17OAR4590142
JHT	FY19	Transitioning Ensemble-based TC Track and Intensity Sensitivity to Operations	Ryan Torn Sim Aberson Jason Dunion	SUNY Albany; NOAA/OAR/AOML; University of Miami	External	7/1/2019	6/30/2022	\$176,758	NA19OAR4590129
JHT	FY19	Upgrades to the M-PERC and PERC Models to Improve Short Term Tropical Cyclone Intensity Forecasts	Derrick Herndon	University of Wisconsin / CIMSS	External	7/1/2019	6/30/2021	\$90,526	NA19OAR4590132
JHT	FY19	Further improvements and extensions to the tropical cyclone logistical guidance for genesis (TCLOGG)	Robert Hart Daniel Halperin	Florida State University; Embry-Riddle Aeronautical University	External	7/1/2019	6/30/2023	\$344,991	NA19OAR4590134 NA19OAR4590135
HOT	FY22	Forecaster Support Products for Analysis of Tropical Cyclone Intensity and Structure from Aircraft Reconnaissance Observations- Hurricane Ocean Testbed (previously the Joint Hurricane Testbed)	Jonathan L. Vigh Michael M. Bell Jun A. Zhang Eric A. Hendricks Christopher M. Rozoff	NCAR; Colorado State University; University of Miami / CIMAS	External	8/1/2022	7/31/2025	\$748,584	NA22OAR4590527 NA22OAR4590523 NA22OAR4590521
HOT	FY22	A Machine Learning Model for Estimating Tropical Cyclone Track and Intensity Forecast Uncertainty- Hurricane Ocean Testbed (previously the Joint Hurricane Testbed)	Dr. Mark DeMaria Dr. Elizabeth Barnes	CIRA / Colorado State University	External	8/1/2022	7/31/2025	\$500,918	NA22OAR4590525
HOT	FY22	Expansion of Ensemble-based Sensitivity to TC Hazard Forecasts- Hurricane Ocean Testbed (previously the Joint Hurricane Testbed)	Dr. Ryan Torn	University at Albany-SUNY	External	8/1/2022	7/31/2025	\$314,702	NA22OAR4590528
HOT	FY22	The Impact of Targeted Synoptic Dropsondes on Tropical Cyclone Forecasts in HAFS	Sarah D. Ditchek	University of Miami	External	8/1/2022	7/31/2025	\$389,054	NA22OAR4590534
AQ	FY15	Rapid refreshing of anthropogenic NOx emissions through assimilated fused satellite and ground observations	Pius Lee	NOAA/OAR/ARL	External	6/1/2015	5/30/2016	\$141,000	
AQ	FY15	Toward a Unified National Dust Modeling Capability: Data Assimilation	Mariusz Pagowski	NOAA/OAR/ESRL; Colorado State University / CIRA	External	6/1/2015	5/30/2016	\$147,000	
AQ	FY15	Kalman-filter/Analog Predictions of Surface PM2.5: Research to Operations	Irina Djalalova	University of Colorado	External	6/1/2015	5/30/2016	\$140,148	
AQ	FY15	In-Line Coupling of NMMB and CMAQ Models through NCEP's ESMF: Proof of Concept for Dust Forecasting	Richard Artz	NOAA/OAR/ARL	External	6/1/2015	5/30/2016	\$146,388	
AQ	FY15	Toward a Unified National Dust Modeling Capability	Georg Grell	NOAA/OAR/ESRL	External	6/1/2015	5/30/2016	\$249,632	
AQ	FY16	Post-Processing of CMAQ Air Quality Predictions: Research to Operations	Irina Djalalova	NOAA/OAR/ESRL/PSL; CIRES/University of Colorado	External	6/1/2016	5/31/2019	\$387,450	
AQ	FY16	A Novel Ensemble Design for PM2.5 Probabilistic Predictions and Quantification of their Uncertainty	Luca Monache	NCAR	External	6/1/2016	12/31/2019	\$449,249	NA16OAR4590116
AQ	FY16	Developing a unified online air quality forecasting system based on CMAQ and NGGPS	Georg Grell	NOAA/OAR/ESRL	External	6/1/2016	12/31/2019	\$442,343	
AQ	FY16	Towards the Improvement of Chemical Lateral Boundary Conditions for the NAQFC	Zhining Tao Huisheng Bian Daniel Tong	University of Space Research Associatio University of Maryland University of Maryland	External	6/1/2016	5/31/2020	\$431,855	NA16OAR4590118 NA16OAR4590119 NA16OAR4590120
AQ	FY16	Top-down Estimation of Wildfire Smoke Emission Based on HYSPLIT Model and NOAA NESDIS GOES Aerosol/Smoke Products to Improve Smoke Forecasts in the US	Tianfeng Chai	University of Maryland	External	6/1/2016	5/31/2020	\$335,805	NA16OAR4590121
AQ	FY16	Improving Spatial Resolution of Wildland Fire Location and Fuel Biomass Data Inputs to NOAA's NAQFC	Stacy Drury	Sonoma Technology Inc.	External	6/1/2016	5/31/2018	\$149,966	NA16OAR4590117
AQ	FY19	A novel method for improving fine particulate matter air quality forecasts during wildfires	Rajesh Kumar	NCAR	External	6/1/2019	5/31/2023	\$584,732	NA19OAR4590083
AQ	FY19	Towards Optimal Configurations of NAQFC Chemistry and Aerosol Representations	Yang Zhang Daniel Tong	Northeastern University (previously North Carolina State University) George Mason University	External	6/1/2019	7/31/2023	\$749,999	NA20OAR4590259 NA19OAR4590084 NA19OAR4590085

AQ	FY19	Development of the National Global Data Assimilation Ensemble-based System for Forecasting of Aerosols	Mariusz Pagowski	CIRES-University of Colorado	External	6/1/2019	5/31/2022	\$627,501	NA19OAR4590080
AQ	FY19	NAQFC Community Emission Testbed (NCET): Accelerating anthropogenic emission updates for NAQFC FV3-CMAQ through community collaboration	Bok Baek Daniel Tong	George Mason University (previously University of North Carolina); George Mason University	External	6/1/2019	7/31/2022	\$727,209	NA21OAR4590143 NA19OAR4590081 NA19OAR4590082
AQ	FY22	Implementing a state-of-the-science fire behavior model in the Unified Forecast System	Pedro A. Jimenez Munoz Branko Kosovic Maria Frediani Timothy Juliano	NCAR	External	8/1/2022	7/31/2025	\$1,049,514	NA22OAR4590514
AQ	FY22	Enhancing high resolution forecasting capability of RRFS-CMAQ	Yang Zhang Daniel Q. Tong Fanglin Yang	Northeastern University; George Mason University; NWS/EMC	External	8/1/2022	7/31/2025	\$1,050,000	NA22OAR4590515 NA22OAR4590512
AQ	FY22	A novel dynamical ensemble design for probabilistic air quality predictions during wildfires based on RRFS-CMAQ	Rajesh Kumar Stefano Alessandrini	NCAR	External	8/1/2022	7/31/2025	\$747,722	NA22OAR4590513
AQ	FY22	Beyond the "Big-Leaf" Model at NOAA: Use of Novel Satellite Data and In-Canopy Processes to Improve U.S. Air Quality Predictions	Patrick C. Campbell	George Mason University	External	8/1/2022	7/31/2025	\$685,218	NA22OAR4590516
AQ	FY22	Development of Improved Short-Term, Probabilistic Fire Weather Prediction and Fire Forecast Sensitivity Analysis	Brian Ancell	Texas Tech University	External	12/1/2022	11/30/2025	\$502,459	NA23OAR4590108
AQ	FY22	Using Deep Learning to Improve Knowledge of Synoptic Conditions Leading to Extreme Fire Weather and Behavior	Christina Kumler Ryan Lagerquist	University of Colorado; Colorado State University	External	12/2/2022	12/1/2025	\$181,939	NA23OAR4590109 NA23OAR4590110
AQ	FY22	Real-time RRFS-Smoke hybrid data assimilation of VIIRS/GOES-16/17 AOD and surface PM2.5 observations for improved regional smoke and fire weather forecasting	Anton Kliewer	Colorado State University	External	12/3/2022	12/2/2025	\$801,044	NA23OAR4590111
AQ	FY22	Integrating Fire Weather Forecast System Verification into METplus	Amanda Siems-Anderson	NCAR	External	12/4/2022	12/3/2025	\$299,989	NA23OAR4590112
APAR	FY17	Airborne Phased Array Radar (APAR) Development and Risk Mitigation Project	Vanda Grubisic	NCAR	External	10/1/2017	3/31/2019	\$2,340,875	NA17OAR0110333
APAR	FY18	2019 - 2020 Airborne Phased Array Radar (APAR)	Vanda Grubisic	NCAR	External	10/1/2018	9/30/2021	\$4,800,000	NA18OAR4590431
APAR	FY19	2020 Airborne Phased Array Radar Preliminary Design and Risk Mitigation	Vanda Grubisic	NCAR	External	10/1/2019	9/30/2020	\$1,327,600	NA19OAR4590245
ESPC	FY17	Building a Distributed Earth System Model development Community	DeLuca, Cecelia	CIRES NOAA ESRL	Internal	10/1/2017	9/30/2018	\$318,000	
ESPC	FY17	Critical Steps toward a National Global Ocean Modeling Capability in Support of ESPC	Hallberg, Robert	GFDL	Internal	10/1/2017	9/30/2018	\$187,000	
ESPC	FY18	Critical Steps Toward a National Ocean Modeling Capability in Support of the National Earth System Prediction Capability - Phase II	Hallberg, Robert	GFDL	Internal	10/1/2018	9/30/2019	\$300,000	
ESPC	FY19	Preliminary Steps Toward a National Ocean Modeling Capability in Support of the National Earth System Prediction Capability - Phase III	Hallberg, Robert Eric Chassignet	GFDL Florida State University	Internal	10/1/2019	9/30/2020	\$370,000	
ESPC	FY20	Preliminary Steps Toward a National Ocean Modeling Capability in Support of the National Earth System Prediction Capability - Phase IV	Hallberg, Robert Eric Chassignet	GFDL Florida State University	Internal	10/1/2020	9/30/2021	\$260,000	
ESPC	FY20	Impact of the western boundary currents on extreme precipitation: A case study in the Atlantic Ocean from along-transect measurements and high-resolution model simulations.	Shenfu Dong	AOML	Internal	8/1/2020	7/31/2021	\$188,400	
USWRP R2O	FY15	Probability of What? Understanding and Conveying Uncertainty through Probabilistic Hazard Services	Alan Gerard	OAR/NSSL	Internal	5/1/2015	4/30/2018	\$1,572,600	
USWRP R2O	FY15	Automated High-Resolution Ensemble-Based Hazard Prediction Tool	Curtis Alexander	OAR/ESRL/GSD	Internal	5/1/2015	4/30/2018	\$2,250,000	
SSP	FY16	Hazards SEES Type 2: Next Generation, Resilient Warning Systems for Tornadoes and Flash Floods, Supplement	Brenda Philips Joseph Trainor	UMass Amherst University of Delaware	External	9/1/2016	12/31/2019	\$99,986	
SSP	FY16	Guidelines for Expressing Uncertainty in Impact Decision Support Service Products Supplement to NSF award "Improving Public Response to Weather Warnings."	Susan Joslyn	University of Washington	External	9/1/2016	5/31/2020	\$100,001	
SSP	FY16	Advancing Social and Behavioral Science Research and Application within the Weather Enterprise	N/A	National Academy of Sciences	External	3/8/2016	3/7/2018	\$650,000	
SSP	FY17	An Examination of the State of Knowledge on Risk Perceptions and Understanding Response to Uncertainty Information	Terri Adams	Howard University	External	8/1/2017	12/31/2019	\$87,649	
SSP	FY17	Alliance for Integrative Approaches to Extreme Environmental Events	Kim Klockow-McClain Kelvin Droegemeier	University of Oklahoma Alliance	External	5/1/2017	5/31/2020	\$50,000	
SSP	FY18	Estimating the Economic Benefits of the Tornado Warning Improvement and Extension Program	Kimberly Klockow	OU/CIMMS Austin College	External	10/1/2018	9/30/2020	\$400,000	

SSP	FY18	A Web Based Survey to Estimate the Economic Value of Improved Hurricane Forecasts	AOML/Letson	CIMAS	External	10/1/2018	9/30/2020	\$400,000	
SSP	FY18	Estimating the Value of Economic Resiliency Created By Weather Forecasts	Haydar Kurban	Howard University	External	10/1/2018	9/30/2022	\$400,000	
SSP	FY18	Joint Project: Social Media Message Amplification and Attentional Networks	Jeannette Sutton Carter Butts	University of Kentucky UC Irvine	External	10/1/2018	9/30/2021	\$99,974	
SSP	FY18	NSF title: Hazards SEES Type 2: Hazard Prediction and Communication Dynamics in the Modern Information Environment	Rebecca Morss	NCAR	External	10/1/2018	9/30/2021	\$100,589	
SSP	FY19	NSF title: RAPID: Responding to the Risk of Hurricanes Harvey and Irma: Choices and Adjustment Over Time	Roxane Silver	UC Irvine	External	2/1/2019	2/1/2021	\$103,340	
SSP	FY19	Wait, that forecast changed? Assessing how publics consume and process changing tropical cyclone forecasts over time	Wong Parodi Rebecca Morss Leysia Palen	Stanford University	External	7/1/2019	9/30/2022	\$55,133	NA19OAR0220095 NA19OAR0220103 NA19OAR0220119
SSP	FY19	Optimizing Tropical Cyclone Information: An NOAA Hurricane Website User Experience Study from a Public Perspective	Scott Miles	University of Washington	External	7/1/2019	6/30/2021	\$191,450	NA19OAR0220127
SSP	FY19	Minding the gap: Modernizing the TC product suite by evaluating NWS partner information needs	Rebecca Morss Ann Bostrom	NCAR	External	7/1/2019	9/30/2022	\$383,131	NA19OAR0220121 NA19OAR0220192
SSP	FY19	There's a Chance of What? Assessing Numeracy Skills of Forecasters, Partners, and Publics to Improve TC Product Uncertainty Communication, IDSS, and Training	Joseph Ripberger Carol Silva Hank Jenkins-Smith Edward Cokely	University of Oklahoma	External	7/1/2019	6/30/2021	\$381,827	NA19OAR0220120
SSP	FY20	Accelerating Development of the US Extreme Weather and Society Survey Series	Joseph Ripberger Carol Silva Hank Jenkins-Smith Edward Cokely	University of Oklahoma	External	7/1/2020	9/30/2021	\$569,606	
SSP	FY20	Examining the public's changing risk assessments and responses to tropical cyclone forecasts using a longitudinal survey methodology	Julie Demuth Rebecca Morss	NCAR	External	9/1/2020	8/31/2022	\$239,912	NA20OAR4590469
SSP	FY20	Threats in Motion (Taller TIM)	Sylvia Murphy	NOAA GSL	Internal	10/1/2020	9/30/2022	\$536,308	
SSP	FY20	Weather Ready Research: A Special Initiative of the Natural Hazards Center Quick Response Research Program	Lori Peek	University of Colorado Boulder	External	9/1/2020	8/31/2022	\$562,580	
SSP	FY20	Social Data Strategy	Alice Grossman Gina Eosco Laura Newcomb	NOAA Weather Program Office	Internal	9/1/2020	9/30/2022	\$636,478	
SSP	FY21	Dynamic Communication of Weather Risk: A User-Centered Design Approach	Sharanya Majumdar Kenneth Broad Alberto Cairo Scotney Evans Barbara Millet Rebecca Morss	University of Miami NCAR	External	8/1/2021	7/31/2023	\$496,965	NA21OAR4590205 NA21OAR4590206
SSP	FY21	Using Quick Response Surveys to Generate a Public Perception and Response Database	Brenda Phillips Vankita Brown	University of Massachusetts Amherst	External	8/1/2021	7/31/2023	\$396,855	NA21OAR4590207
SSP	FY21	Employing Rhetoric to Improve Probabilistic Forecast Communication	Kathryn Lambrecht Lynda Olman	Arizona State University	External	8/1/2021	7/31/2023	\$485,382	NA21OAR4590208
SSP	FY21	Operationalizing Impact-Based Decision Support Services (IDSS) for a Broader Impact Across Cultures and Weather Events	Leticia Williams Terri Adams Vankita Brown Rosa Fitzgerald	Howard University	External	8/1/2021	7/31/2023	\$362,881	NA21OAR4590209
SSP	FY21	Improving the Effectiveness of IDSS For Severe Convective Weather and Flood Events	Daphne LaDue Cassandra Shivers-Williams Dereka Carroll	University of Oklahoma Jackson State University	External	8/1/2021	7/31/2023	\$393,607	NA21OAR4590210 NA21OAR4590211
SSP	FY21	Developing, Testing, and Evaluating Methods for Transitioning the Brief Vulnerability Overview Tool (BVOT) to NWS Weather Forecasting Office Operations	Jack Friedman Daphne LaDue	University of Oklahoma	External	8/1/2021	7/31/2023	\$470,053	NA21OAR4590212
SSP	FY21	Establishing the Extreme Weather and Emergency Management Survey	Joseph Ripberger Carol Silva Hank Jenkins-Smith Scott Robinson Andrew Fox Warren Eiler	University of Oklahoma	External	8/1/2021	7/31/2023	\$487,583	NA21OAR4590213
SSP	FY21	Improving Knowledge about NWS Forecaster Core Partner Needs for Reducing Vulnerability to Compound Threats in Landfalling Tropical Cyclones Amid Covid-19	Jennifer Henderson Erik Nielson	Texas Tech University Texas A & M University	External	8/1/2021	7/31/2023	\$420,353	NA21OAR4590214 NA21OAR4590215

SSP	FY21	Salient, Interactive, Relevant, Confidence, and Action (SIRCA): Using Virtual Reality Storm Surge Simulations to Increase Risk Perception and Prevention Behaviors	Sun Joo Ahn Jill Gambill Matthew Browning	University of Georgia Clemson University	External	8/1/2021	7/31/2023	\$499,931	NA21OAR4590216 NA21OAR4590217
SSP	FY21	Examining Regional Differences in Attitudes and Tendencies for Protective Action Decisions	Cassandra Shivers-Williams Daphne LaDue Lara Mayeux Terri Adams	University of Oklahoma Howard University	External	8/1/2021	7/31/2023	\$461,416	NA21OAR4590218 NA21OAR4590219
SSP	FY22	Analysis of Longitudinal Extreme Weather and Society Data and Development of the Flood Weather Survey and Dashboard	Joseph Ripberger Makenzie Krocak Carol Silva Hank Jenkins-Smith	University of Oklahoma	External	8/1/2022	7/31/2024	\$659,993	NA21OAR4320204
SSP	FY22	Weather Ready Research: A Special Initiative of the Natural Hazards Center Quick Response Research Program	Lori Peek	University of Colorado Boulder	External	9/1/2022	7/31/2024	\$700,000 (+ \$16	WPOSSP00301 (IAA Number)
CTB	FY18	A Hybrid Statistical-Dynamical System for the Seamless Prediction of Daily Extremes and Subseasonal to Seasonal Climate Variability	Dan Collins	NOAA/CPC	Internal	8/1/2018	9/31/2021	\$302,000	
CTB	FY18	A New Technique for Improved MJO Prediction	Chidong Zhang Wanqiu Wang	NOAA/PMEL NOAA/CPC	Internal	8/1/2018	7/31/2020	\$280,011	
CTB	FY18	Operational transition of novel statistical-dynamical forecasts for tropical subseasonal-to-seasonal drivers	Stephen Baxter Carl Schreck	NOAA/CPC North Carolina State University	External	8/1/2018	7/31/2021	\$259,674	NA18OAR4310297
CTB	FY18	Sensitivity of NMME Seasonal Predictions to Ocean Eddy Resolving Coupled Models	Benjamin Kirtman Robert Burgman	University of Miami-RSMAS Florida International University	External	8/1/2018	7/31/2021	\$338,721	NA18OAR4310293
CTB	FY18	Skillfully Predicting Atmospheric Rivers and Their Impacts in Weeks 2-5 Based on the State of the MJO and QBO	Elizabeth Barnes	Colorado State University	External	8/1/2018	7/31/2022	\$190,259	NA18OAR4310296
CTB	FY18	Subseasonal to Seasonal Prediction with NCAR's CESM2-WACCM	Jadwiga Richter Dan Collins Judith Perlwitz	UCAR NOAA/CPC NOAA/ESRL/PSD	External	8/1/2018	7/31/2021	\$338,951	NA18OAR4310294
CTB	FY18	Testing, refinement and demonstration of probabilistic multi-model, calibrated sub-seasonal global forecast products	Andrew Robertson Dan Collins	Columbia University NOAA/CPC	External	8/1/2018	7/31/2022	\$340,000	NA18OAR4310295
CTB	FY20	Improving NCEP GEFS for Subseasonal Forecasts	Xin-Zhong Liang Yuejian Zhu	University of Maryland NOAA/EMC	External	8/1/2020	7/31/2023	\$500,000	NA20OAR4590313
CTB	FY20	Accelerating Progress in Subseasonal to Seasonal Prediction Capabilities by Improving Subgrid-Scale Parameterizations in the Unified Forecast System	Benjamin Green Vijay Tallapragada	CIRES/University of Colorado NOAA/ESRL/GSL NOAA/EMC	External	8/1/2020	7/31/2022	\$475,601	NA20OAR4590314
CTB	FY20	Developing and Assessing Storminess Indices for Monitoring and Predicting Subseasonal Variations in Storminess near Alaska	Edmund Kar-Man Chang Wanqiu Wang	Stony Brook University NOAA/CPC	External	8/1/2020	7/31/2023	\$373,906	NA20OAR4590315
CTB	FY20	ENSO-MJO Diagnostics in an Energetic Framework	Cristiana Stan Zeng-Zhen Hu Avichal Mehra	George Mason University NOAA/CPC NOAA/EMC	External	8/1/2020	7/31/2023	\$450,267	NA20OAR4590316
CTB	FY22	Ensemble Post Processing to Remove Projections onto Temporal Spatial Error Eigenvectors to Optimize Seasonal to Subseasonal Forecasts	Paul Roundy Emerson LaJoie	University at Albany-SUNY, NWS CPC	External	8/1/2022	7/31/2024	\$220,470	NA22OAR4590218
CTB	FY22	Diagnostics Package for MJO-Teleconnections	Christiana Stan Avichal Mehra F. Martin Ralph Jiabao Wang Yutian Wu	George Mason University, NWS EMC University of California San Diego, Columbia University, Stony Brook University; NCAR; University of California Irvine; ETH Zurich (Swiss Federal Institute of Te Hebrew University Jerusalem	External	8/1/2022	7/31/2024	\$579,562	NA22OAR4590216
CTB	FY22	Development of a Global Aerosol Reanalysis at NOAA in Support of Climate Monitoring and Prediction	Bo Huang Mariusz Pagowski Stephen Penny Sergey Frolov Georg Grell	University of Colorado Boulder, NOAA/ OAR/ PSL, NOAA/OAR/ GSL, NOAA/NWS/ EMC, NOAA/NESDIS, NCAR	External	8/1/2022	7/31/2024	\$438,590	NA22OAR4590219
CTB	FY22	Transitioning NMME-based seasonal predictions of atmospheric river activity into an operational forecast product	Baoqiang Xiang Nathaniel Johnson Kristen Schepel Kai-Chih Tseng	NCAR; NOAA/GFDL Princeton University, NWS/CPC	External	8/1/2022	7/31/2024	\$278,489	NA22OAR4590217
S2S	FY19	Improving CPC's Empirical Forecast Tools	David DeWitt	CPC	SLA	9/1/2019	9/30/2020	\$160,000	OWAQ19-NWS-CPO-SLA-1
S2S	FY19	Supporting Real-Time Climate Monitoring at CPC	Arun Kumar	CPC	SLA	9/1/2019	8/31/2021	\$320,000	OAR-CPO-NWS-CPC SLA 18-2-2
S2S	FY19	Probabilistic Drought Outlook	Kingse Mo	CPC	SLA	9/1/2019	8/31/2020	\$160,000	OAR-CPO-NWS-CPC SLA 18-2-6
S2S	FY19	Improving Dissemination and Usability of CPC Drought Products and Services via GIS Related Methods	Adam Allgood	CPC	SLA	9/1/2019	8/31/2020	\$175,000	OAR-CPO-NWS-CPC SLA 18-2-4

S2S	FY18	Development of Fire Weather Related 8-14 Day Forecast Products for CPC	Thomas Hamill David DeWitt	ESRL/PSL CPC	SLA	7/1/2018	6/30/2021	\$600,000	OAR-CPO-NWS-CPC SLA 18-1-007
S2S	FY19	Climate Information for Global Heat-Health and Malaria in Africa	Wassila Thiaw	CPC	SLA	10/1/2019	9/30/2020	\$175,000	OAR-CPO-NWS-CPC SLA 18-1-1
S2S	FY19	Incorporate Coastal Data into Local Climate Analysis Tool (LCAT) for Regional and Local Decision Support	Michael Churma	OSTI/MDL	SLA	7/1/2019	6/30/2020	\$150,000	OAR-CPO-NWS-MDL SLA 18-2-018
S2S	FY19	Application of the National Water Model for Drought Monitoring and Nowcasting	David DeWitt Robert Webb Ed Clark	CPC PSD OWP	SLA	9/2/2019	8/31/2020	\$400,000	OWAQ19-NWS-CPO-SLA-2
S2S	FY19	Extending the temporal range for aviation wind guidance	Matthew Rosencrans	CPC	SLA	10/1/2019	9/30/2021	\$400,000	OWAQ-NWS-SLA FY19-P-15
S2S	FY19	Improved Guidance for Week 3-4 Temperature and Precipitation Outlooks	Michael Alexander	PSD	SLA	7/1/2019	6/30/2020	\$200,706	OWAQ-NWS-SLA FY19-P-19
S2S	FY19	Incorporating Weather Extremes Analysis Capabilities into Local Climate Analysis Tool (LCAT)	Michael Churma	OSTI/MDL	SLA	1/1/2020	12/31/2020	\$160,000	OWAQ-NWS-SLA FY19-P-20
S2S	FY19	MJO and QBO Contributions to U.S. Precipitation Skill at S2S Leads	Elizabeth Barnes Juliana Dias Stephan Tulich	Colorado State University; University of Colorado - CIRES	External	9/1/2019	8/31/2023	\$671,254	NA19OAR4590151 NA19OAR4590152
S2S	FY19	S2S Forecasting of North American Precipitation Anomalies: Using Empirical Forecasts to Challenge Dynamical Forecasts	David Randall	Colorado State University	External	9/1/2019	8/31/2023	\$619,702	NA19OAR4590155
S2S	FY19	Benefits of stochastic parameterization on the sub-seasonal to seasonal timescales in hindcasts with CESM and UFS	Judith Berner Philip Pegion	UCAR/CGD; CU-CIRES/PSD	External	9/1/2019	8/31/2023	\$860,281	NA19OAR4590156 NA19OAR4590157
S2S	FY19	Diagnosing and Improving Unified Forecast System precipitation through observationally constrained stochastic parameterizations	Prashant Sardeshmukh	CURES-University of Colorado	External	9/1/2019	8/31/2023	\$843,554	NA19OAR4590158
S2S	FY19	Assessment and calibration of extreme precipitation probabilities in S2S forecast models	Chiara Lepore	Columbia University-LDEO	External	9/1/2019	8/31/2023	\$272,026	NA19OAR4590159
S2S	FY19	Ensemble Prediction and Predictability of Extreme Weather via Circulation Regimes	David Straus Kathleen Pegion Stephen Baxter	George Mason University	External	9/1/2019	8/31/2023	\$696,763	NA19OAR4590153
S2S	FY20	Improving CPC's Empirical Forecast Tools (Continuation Project)	Stephen Baxter	NWS/NCEP/CPC	SLA	9/1/2020	8/31/2021	\$148,000	
S2S	FY20	Development of Fire Weather Related 8-14 Day Forecast Products for CPC	Thomas M. Hamill	NOAA PSL	SLA	7/1/2020	6/30/2021	\$180,000	
S2S	FY20	Support real-time climate monitoring at Climate Prediction Center (CPC)	Arun Kumar	NWS/NCEP/CPC	SLA	9/1/2020	8/31/2021	\$148,000	
S2S	FY20	Improved Guidance for Week 3-4 Temperature and Precipitation Outlooks	Michael Alexander Matthew Newman	PSD	SLA	7/1/2020	6/30/2021	\$180,000	
S2S	FY20	Extending the temporal range for aviation wind guidance	Matthew Rosencrans	CPC, AWC and CWSU	SLA	10/1/2020	9/30/2021	\$179,998	
S2S	FY20	Climate Information for Heat-Health and Malaria Risk Mapping in Africa	Wassila Thiaw	CPC	SLA	10/1/2020	9/30/2021	\$162,000	
S2S	FY20	Incorporating Weather Extremes Analysis Capabilities into LCAT	Michael Churma Judy Ghirardelli	MDL	SLA	1/1/2021	12/31/2021	\$144,000	
S2S	FY20	NWS Snow Drought Tracker - Research to Operations	Andrea Bair	WRCC	SLA	9/1/2020	8/31/2021	\$64,200	
S2S	FY20	Extending Maritime Hazard Information to Week Two and Beyond	Darin Figurskey	OPC/CPC/EMC	SLA	9/1/2020	8/31/2021	\$153,000	
S2S	FY20	Statistically generated Probabilistic Sea Ice Guidance for the week 3 to Seasonal Time Scale using an Ensemble approach Based upon various Model inputs	Eugene Petrescu	ACCAP	SLA	7/1/2020	6/30/2021	\$40,000	
S2S	FY20	Consumptive Use Modeling in the Colorado River Basin for CBRFC	Paul Miller	CBRFC	SLA	9/1/2020	8/31/2021	\$39,798	
S2S	FY20	Understanding and Modeling Variability of Flows in the Upper Colorado River Basin at 2 to 5 Year Timescales for Improved Water Resources Management	Paul Miller	CBRFC	SLA	9/1/2020	8/31/2021	\$100,000	
S2S	FY20	High-Resolution Large-Ensemble Probabilistic Forecasts of Precipitation for the Northwestern US	Chidong Zhang	PMEL	Internal	8/1/2020	7/31/2021	\$340,134	
S2S	FY20	An optimized hybrid seasonal forecast system for U.S. regional precipitation in late-summer to mid-fall based on inter-basin SST and convection parameters	Sang-ki Lee	AOML/HRD	Internal	8/1/2020	7/31/2021	\$204,400	
S2S	FY20	Using high-resolution simulations (LES and CAM) from field experiments to improve physics parameterizations for medium-range and sub-seasonal forecasting	Joseph Olson	GSL	Internal	8/1/2020	7/31/2021	\$241,735	
S2S	FY22	Enhancing NOAA UFS subseasonal to seasonal predictions of precipitation and drought via improved representation of snowpack processes	Cenlin He Fei Chen Ronnie Abolafia-Rosenzweig	NCAR	External	8/1/2022	7/31/2025	\$1,049,145	NA22OAR4590503

S2S	FY22	Assessing the impact of dynamic vegetation on drought forecasts	Jason Otkin Michael Ek Tara Jensen	University of Wisconsin; NCAR	External	8/1/2022	7/31/2025	\$1,018,874	NA22OAR4590505 NA22OAR4590504
S2S	FY22	The Road to the Seasonal Forecast System: Improving Prediction of Precipitation Extremes	Benjamin Cash James Kinter	George Mason University	External	8/1/2022	7/31/2025	\$1,047,506	NA22OAR4590506
S2S	FY22	Characterizing the impact of UFS model error and bias on S2S CONUS forecast skill using a hybrid UFS-machine learning approach	John Albers Matt Newman	CIRES / University of Colorado	External	8/1/2022	7/31/2025	\$577,652	NA22OAR4590507
S2S	FY22	Integrated surface physics for coupled hydrometeorology in the UFS for S2S prediction	David Gochis Paul Dirmeyer Michael Ek	NCAR George Mason University	External	8/1/2022	7/31/2025	\$900,000	NA22OAR4590508 NA22OAR4590509
S2S	FY22	Identifying efficient perturbations for initializing subseasonal-to-seasonal ensemble forecasts with the UFS	Stephen Penny Thomas Hamill Arun Kumar	University of Colorado; NOAA/OAR/PSL; NOAA/NWS/CPC	External	8/1/2022	7/31/2025	\$620,761	NA22OAR4590510
NOPP	FY22	Enhancing the Realism of MOM6-SIS2 Simulations with Ocean Tides	Edward D. Zaron Santha Akella Brian Arbic Eric Chassignet	Oregon State University NASA-GSFC Univ of Michigan Florida State Univ	External	5/6/2022	5/5/2025	\$884,196	NA22OAR0110487
Infrasound	FY16	Augmentation of VORTEX-SE Intensive Observations Period Measurements with Infrasound Observations to Detect and Track Tornadoes	Carrick Talmadge	University of Mississippi	External	10/1/2016	12/31/2017	\$249,697	NA16OAR4590204
Infrasound	FY16	Direct detection of tornadoes using Infrasound remote sensing: assessment of capabilities through comparison with dual polarization radar and other direct detection measurements	Hank Rinehart Kevin Knupp	General Atomics; University of Alabama-Huntsville	External	10/1/2016	9/30/2018	\$243,272	NA16OAR4590205 NA16OAR4590206
Infrasound	FY17	Evaluation and Improvements of Tornado Detection using Infrasound Remote Sensing: Comparative Analysis of Infrasound, Radar, Profiler, and Meteorological Data Sets, and Potential Impacts on NOAA/NWS Operations	Hank Rinehart Kevin Knupp	General Atomics; University of Alabama-Huntsville	External	10/1/2017	9/30/2019	\$249,932	NA17OAR4590167 NA17OAR4590169
Infrasound	FY17	Infrasound Detection of Tornadoes	Roger Waxler	University of Mississippi	External	9/1/2017	12/31/2019	\$249,765	NA17OAR4590168
APAR	FY17	Airborne Phased Array Radar (APAR) Development and Risk Mitigation Project	Vanda Grubisic	NCAR	External	10/1/2017	3/31/2019	\$2,340,875	NA17OAR0110333
SSM	FY18	Improving National Water Model Snowmelt Runoff Prediction	Guo-Yue Niu Michael Barlage	University of Arizona; NCAR	External	9/1/2018	8/31/2022	\$671,432	NA18OAR4590397 NA18OAR4590398
SSM	FY18	Evaluation and diagnosis of National Water Model simulations over CONUS using a novel snow reanalysis dataset	Dennis Lettenmaier Konstantinos Andreadis	University of California Los Angeles	External	9/1/2018	8/31/2021	\$573,314	NA18OAR4590396
SSM	FY18	Implementing Snow Data Assimilation Capabilities for the National Water Model and Experimental Assimilation of JPSS Observations of Snow Water Equivalent	Yu Zhang Cezar Kongoli	University of Texas Arlington; University of Maryland	External	9/1/2018	8/31/2022	\$635,887	NA18OAR4590410 NA18OAR4590411
SSM	FY18	Use of MRMS-derived hydrometeor classification for determining initial hydrometeor phase in the National Water Model	Heather Reeves Mimi Hughes David Gochis	University of Oklahoma; CIRES; NCAR	External	9/1/2018	8/31/2021	\$449,680	NA18OAR4590413 NA18OAR4590412 NA18OAR4590414
SSM	FY18	Experimental Framework for Testing the National Water Model: Operationalizing the Use of Snow Remote Sensing in Alaska	Katrina Bennett Katrina Bennett Vladimir Alexeev Aubrey Dugger	Los Alamos National Laboratory; New Mexico Consortium; University of Alaska Fairbanks; Research Applications Lab	External	10/1/2018 3/1/2020 10/1/2018 10/1/2018	11/30/2019 2/28/2022 9/30/2021 8/31/2021	\$669,687	NA18OAR4590415 NA20OAR4590255 NA18OAR4590417 NA18OAR4590416
Infrasound	FY18	Identification of the Fluid Mechanisms Associated with Tornadoic Storm Infrasound	Brian Elbing	Oklahoma State University	External	9/1/2018	8/31/2021	\$271,478	NA18OAR4590307
Infrasound	FY18	Infrasound Detection of Tornadoes (FY18)	Roger Waxler	University of Mississippi	External	9/1/2018	8/31/2021	\$499,686	NA18OAR4590305
Infrasound	FY18	Prediction and Measurement of Infrasound Propagation in the Turbulent Atmosphere	Steven Miller	University of Florida	External	9/1/2018	8/31/2020	\$499,901	NA18OAR4590306
APAR	FY18	2019 - 2020 Airborne Phased Array Radar (APAR)	Vanda Grubisic	NCAR	External	10/1/2018	11/30/2021	\$4,800,000	NA18OAR4590431
SSM	FY19	Evaluation and Improvement of Snowmelt Processes in the National Water Model During Extreme Atmospheric River Events in the Western U.S. Events	F Martin Ralph	Scripps Institute, UCSD	External	9/1/2019	8/31/2022	\$500,000	NA19OAR4590198
SSM	FY19	Modernizing Observation Operator and Error Assessment for Assimilating In-situ and Remotely Sensed Snow/Soil Moisture Measurements into NWM	Ming Pan Nathaniel Chaney Clara Draper Craig Ferguson	Princeton University - CIMES; Duke University; University of Colorado - CIRES; SUNY Albany	External	9/1/2019	8/31/2022	\$499,957	NA19OAR4590199 NA19OAR4590200 NA19OAR4590201 NA19OAR4590202
SSM	FY19	Improving Snow and Streamflow Simulation in the National Water Model by Leveraging Advanced Mesonet Observations from the Northeastern United States	Justin Minder David Gochis Theodore Letcher	SUNY Albany; NCAR; USACE CRREL	External	9/1/2019	8/31/2022	\$492,552	NA19OAR4590203 NA19OAR4590204 OWAQOBS001 (IAA)
SSM	FY19	Airborne Snow Depth Retrieval for Improved Hydrological Modeling	Emily Arnold	University of Kansas	External	9/1/2019	8/31/2022	\$499,926	NA19OAR4590206
Infrasound	FY19	Study of Infrasound Propagation from Tornadoic Storms in Dynamic Atmospheres over Hilly Terrain	Roger Waxler	University of Mississippi	External	9/1/2019	8/31/2022	\$343,740	NA19OAR4590338

Infrasound	FY19	Modeling of Infrasound Generation from Tornadoic Storms	Roger Waxler	University of Mississippi	External	9/1/2019	8/31/2022	\$499,737	NA19OAR4590339
Infrasound	FY19	Infrasound Observations and Demonstration of Real-Time Tools	Brian Elbing	Oklahoma State University	External	9/1/2019	8/31/2022	\$499,907	NA19OAR4590340
Infrasound	FY19	Understanding the infrasound characteristics of nontornadoic and tornadoic supercells in VORTEX2 and VORTEX-SE environments using high-resolution ensemble simulations	Matthew Parker	North Carolina State University	External	9/1/2019	8/31/2022	\$347,198	NA19OAR4590341
APAR	FY19	2020 Airborne Phased Array Radar Preliminary Design and Risk Mitigation	Vanda Grubisic	NCAR	External	10/1/2019	11/30/2021	\$1,327,600	NA19OAR4590245
Obs	FY19	Real-time Observations of the Three-Dimensional Hurricane Boundary Layer Winds and Ocean Surface Vector Winds with an Imaging Airborne Profiler	Zorana Jelenak Paul Chang Stephen Guimond	UCAR; NESDIS; University of Maryland Baltimore County	External	9/1/2019	8/31/2022	\$499,280	NA19OAR4590328 NA19OAR4590329
Obs	FY19	Enhancing Observations of Melting Level to Support Forecasts of Rain-Snow Partitioning in the Sierra Nevada	(Fred) Martin Ralph Andrew Martin	Scripps Institute, UCSD; Portland State University	External	9/1/2019	8/31/2022	\$499,999	NA19OAR4590330 NA19OAR4590331
Obs	FY19	Toward Obtaining Daily Vertical Profiles of Boundary Layer Temperature and Moisture Fields using Small Unmanned Aircraft Systems	Temple Lee Bruce Baker	University of Oklahoma / CIMMS; ARL	External	9/1/2019	8/31/2022	\$488,958	NA19OAR4590332
Obs	FY19	Operational Implementation of Near-Real Time High-Temporal Resolution Thermodynamic Retrievals	Timothy Wagner	University of Wisconsin-CIMSS	External	9/1/2019	8/31/2022	\$284,262	NA19OAR4590319
Obs	FY19	Lower-Tropospheric Thermodynamic and Wind Profiling Impact Study	Tammy Weckwerth	NCAR	External	9/1/2019	8/31/2022	\$497,830	NA19OAR4590320
Obs	FY19	Diode-Laser-Based Remote Sensing for Thermodynamic Profiling of the Lower Troposphere	Kevin Repasky Scott Spuler	Montana State University; NCAR	External	9/1/2019	8/31/2022	\$487,420	NA19OAR4590323 NA19OAR4590324
SSM	FY20	Developing new soil moisture technologies and applications for improving assessments and forecasts of water issues in the Southeast such as flash droughts, floods, and ecosystem health - Alabama phase	John Christy	University of Alabama in Huntsville	BAA	10/1/2020	9/30/2023	\$596,757	NA20OAR4590495
SSM	FY20	Developing new soil moisture technologies and applications for improving assessments and forecasts of water issues in the Southeast such as flash droughts, floods and ecosystem health - Georgia Phase	George Vellidis	University of Georgia	BAA	10/1/2020	9/30/2023	\$300,000	NA20OAR4590498
SSM	FY20	Developing new soil moisture technologies and applications for improving assessments and forecasts of water issues in the Southeast such as flash droughts, floods and ecosystem health - Florida Phase	William Lusher	University of Florida	BAA	10/1/2020	9/30/2023	\$299,878	NA20OAR4590496
Obs	FY21	A New Global 4-km Multi-Decadal Snow Cover Extent/Snow Water Equivalent/Snow Depth Dataset from Blended In-situ and Satellite Observations	Peter Romanov Cezar Kongoli	City College of New York (NOAA-CESR) ESSIC (University of Maryland)	External	8/1/2021	7/31/2023	\$482,666	NA21OAR4590368 NA21OAR4590381
Obs	FY21	Analysis and OSEs of UAS observations for improved high impact weather forecasts	Nusrat Yussouf	CIMMS (University of Oklahoma)	External	8/1/2021	7/31/2023	\$574,312	NA21OAR4590362
Obs	FY21	Anonymization, Bias Correction, and Assimilation of Smartphone Pressure Observations for Use in Numerical Weather Prediction in NOAA	Clifford Mass	University of Washington	External	8/1/2021	7/31/2023	\$571,452	NA21OAR4590380
Obs	FY21	Autonomous Measurements of Air-Sea Interaction from Saildrones for Improved Hurricane Intensity Prediction	Dongxiao Zhang Jun Zhang	CICOES (University of Washington); CIMAS (University of Miami)	External	8/1/2021	7/31/2023	\$599,545	NA21OAR4590394 NA21OAR4590364
Obs	FY21	Development and Demonstration of a Low-Cost, Standalone Mode S EHS Aircraft Derived Atmospheric Observation System for Enhanced Weather Forecasting	Michael McPartland Jason English	MIT Lincoln Laboratory; CIRES (University of Colorado)	External	8/1/2021	7/31/2023	\$599,580	NA21OAR4590395 NA21OAR4590365
Obs	FY21	Development and Deployment of a Sea Clutter Class within the Operational WSR-88D Hydrometeor Classification Algorithm	James Kurdzo	MIT Lincoln Laboratory	External	8/1/2021	7/31/2023	\$413,345	NA21OAR4590385
Obs	FY21	Employing a combined observation and simulation-based framework to investigate spatiotemporal variability in urban heat and associated heat advection	Sandip Pal	Texas Tech University	External	8/1/2021	7/31/2023	\$335,981	NA21OAR4590361
Obs	FY21	Employing Small Unmanned Aircraft Systems to Improve Situational Awareness and Operational Physics Routines Used to Predict Tropical Cyclone Structure and Intensity	Jun Zhang	CIMAS (University of Miami)	External	8/1/2021	7/31/2023	\$598,355	NA21OAR4590370
Obs	FY21	Evaluating Impact of In-situ Observations from Dynamically Targeted Long-Range Long-Duration Balloons	Andrey Sushko	Windborne Systems Inc.	External	8/1/2021	7/31/2023	\$433,772	NA21OAR4590396
Obs	FY21	High-impact Observations for Enhancing Great Lakes Snowfall Forecasting	Claire Pettersen	University of Wisconsin-Madison	External	8/1/2021	7/31/2023	\$557,260	NA21OAR4590367
Obs	FY21	Improvement in NOAA Winter Weather Operations using In Situ Mesonet Observations	Jerald Brotzge	University at Albany - SUNY	External	8/1/2021	7/31/2023	\$559,933	NA21OAR4590376
Obs	FY21	Improving Analysis and Communication of Extreme Temperatures Across the New York City Metropolis Using a Dense Network of In Situ Observations	Nick Bassill	University at Albany - SUNY	External	8/1/2021	7/31/2023	\$594,105	NA21OAR4590360
Obs	FY21	Improving Flood Inundation Mapping Using UAS-Based Optical Imagery	Jamie Dyer	Mississippi State University	External	8/1/2021	7/31/2023	\$591,582	NA21OAR4590366

Obs	FY21	Improving Quality Control of Multi-Radar Multi-Sensor Products from Non-Meteorological Radar Data Artifacts	Jeff Brogden	CIMMS (University of Oklahoma)	External	8/1/2021	7/31/2023	\$561,398	NA21OAR4590377
Obs	FY21	Observation of Sea Level Air Pressure and Directional Wave Spectra from Innovative Expendable Drifting Buoys	Luca Centurioni	University of California - San Diego	External	8/1/2021	7/31/2023	\$599,213	NA21OAR4590374
Obs	FY21	Particle Imaging and Ceilometer Observations for Snowfall Properties and Blizzard Parameters	Norman Wood Aaron Kennedy	University of Wisconsin-Madison; University of North Dakota	External	8/1/2021	7/31/2023	\$457,635	NA21OAR4590372 NA21OAR4590359
Obs	FY21	Rapid Floodwater Extent and Depth Measurements Using Optical UAV and SAR	Leila Hashemi-Beni	NC Agricultural & Technical State University	External	10/1/2021	9/30/2023	\$473,615	NA21OAR4590358
Obs	FY21	Uncrewed aircraft observations to characterize the land surface and its interaction with the lower atmosphere in areas of complex terrain for improved prediction of water and weather	Gijs de Boer	CIRES (University of Colorado)	External	8/1/2021	7/31/2023	\$599,889	NA21OAR4590363
NOAA Community Project	FY22	Infrasonic Weather Monitoring Research to Improve Detection of Violent Weather	Roger Waxler	University of Mississippi	Internal - Earmarked	9/1/2022	8/31/2024	\$2,000,000	NA22OAR4690593
EPIC	FY19	UFS community modeling support	Arun Chawla Rusty Benson Jeff Whitaker Tom Clune	EMC GFDL ESRL/PSD NASA	Internal	6/1/2019	9/30/2020	\$2,167,000	
EPIC	FY19	Accelerating the UFS Evaluation Capability	Ivanka Stajner Geoff Manikin Tara Jensen	EMC NCAR RAL	Internal	6/15/2019	9/30/2020	\$750,000	
EPIC	FY19	Coupled Ensemble Prediction and Data Assimilation for UFS	Jeffrey S. Whitaker Thomas Hamill	ESRL/PSD	Internal	7/1/2019	9/30/2020	\$444,238	
EPIC	FY19	Convection Allowing Model Ensembles optimal configuration for short and longer time scales and Multigrid Background Error Covariance Model	Curtis Alexander Jacob Carley Nusrat Yussouf	GSD EMC CIMMS/OU; NSSL	Internal	9/1/2019	9/30/2020	\$705,135	
EPIC	FY19	Land Data Assimilation for the UFS	Jeffrey Whitaker Robert Cifelli Clara Draper	ESRL/PSD	Internal	7/1/2019	9/30/2020	\$713,707	
EPIC	FY19	Enhancing the Development of Land Models as a Full Component of the Coupled System	Elena Shevliakova	EMC at GFDL	Internal	7/1/2019	9/30/2020	\$350,000	
EPIC	FY19	Development of process-level parameterizations of model uncertainty in the GFS/GEFS	Jeffrey S. Whitaker Jian-Wen Bao	PSL	Internal	9/1/2019	9/30/2020	\$185,828	
EPIC	FY19	Coupling Infrastructure Integration and User Support for UFS (review pages 11-13)	Cecelia DeLuca	GSD/CIRES	Internal	5/1/2019	9/30/2020	\$364,500	
EPIC	FY19	Improving tropical boundary layer structure and cloud systems at all scales	Joseph Olson Georg Grell	GSD	Internal	5/1/2019	9/30/2020	\$200,000	
EPIC	FY19	Improving the microphysics parameterization in high-resolution FV3GFS nested modeling system for tropical cyclone predictions	S. G. Gopalakrishnan Xuejin Zhang	AOML/HRD	Internal	4/1/2019	9/30/2020	\$236,642	
EPIC	FY19	Physics and improved vertical resolution for improving hurricane prediction and tropical convection in GFS	Lucas Harris	GFDL	Internal	7/1/2019	9/30/2020	\$236,642	
EPIC	FY19	Medium-range to S2S prediction at convective scales	Lucas Harris	GFDL	Internal	7/1/2019	9/30/2020	\$236,642	
EPIC	FY20	JCSDA OAR/EPIC Program Supported Projects on JEDI, Observations, CRTM, Applications, DOF	Thomas Auligne Philip Gibbs Katherine Shanahan	UCAR/JCSDA	Internal	4/1/2020	3/31/2021	\$1,600,000	
EPIC	FY20	UFS Community Modeling Support Project: Contributions to the CICE Consortium	Anthony Craig Arun Chawla	STC Contractor/EMC	Internal	6/1/2020	5/31/2021	\$148,000	
EPIC	FY21	Enhancements to CRTM/CSEM microwave ocean emissivity and BRDF models	Kevin Garrett Ming Chen	NESDIS/STAR and CISESS	Internal	6/1/2021	5/31/2022	\$120,000	
EPIC	FY21	UFS Community Modelling Infrastructure, code management at EMC, GFDL, PSL & STI	Arun Chawla Rusty Benson	EMC/GFDL/PSL/STC	Internal	6/1/2021	5/31/2022	\$1,723,000	
EPIC	FY21	NOAA Support for the Earth System Modeling Framework Core Team	Rocky Dunlap	NCAR	External	6/1/2021	5/31/2022	\$287,500	
EPIC	FY21	UFS-R2O Reanalysis and Reforecast project at EMC	Daryl Kleist Arun Chawla	EMC	Internal	7/1/2021	6/30/2022	\$175,000	
EPIC	FY21	UFS-R2O Reanalysis and Reforecast project at PSL	Sergey Frolov Steve Penny	OAR/PSL	Internal	6/1/2021	5/31/2022	\$797,760	
EPIC	FY21	Developmental Testbed Center transition to EPIC contract	Ligia Bernardet Georg Grell	OAR/GSL	Internal	6/1/2021	5/31/2022	\$300,000	
EPIC	FY21	Developmental Testbed Center transition to EPIC contract	Ligia Bernardet Mike Ek Tara Jensen	GSL, DTC	Internal	5/1/2021	9/1/2022	\$300,000	
EPIC	FY21	JCSDA EPIC Funded Projects	Thomas Auligne Philip Gibbs	UCAR/JCSDA	Internal	4/1/2021	3/31/2022	\$1,600,000	

EPIC	FY21	JCSDA Weather Portfolio Funded Projects	Thomas Auligne Philip Gibbs	UCAR/JCSDA	Internal	4/1/2021	3/31/2022	\$528,000	
EPIC	FY21	OAR Cloud Incubator Project Infrastructure & Consultation Support	Tristan Dietz	OAR/ACIO	Internal	7/1/2021	6/30/2022	\$150,000	
EPIC	FY21	OAR Cloud Incubator Projects (14 projects) - Weather Portfolio	PIs/co-PIs from OAR Labs/Prog	Members from OAR Labs & Programs &	Internal	7/1/2021	6/30/2022	\$400,000	
EPIC	FY21	UFS-R2O Shortfall at GSL	Curtis Alexander Georg Grell	GSL	Internal	7/1/2021	6/30/2022	\$254,000	
EPIC	FY21	Expanding numerical algorithms and community capabilities in FV3	Lucas Harris	GFDL	Internal	8/1/2021	7/30/2022	\$225,000	
EPIC	FY21	EPIC Contract Community Infrastructure, Advanced User Support and Community Engagement	Peter Plofchan Marlon Johson	Raytheon Intelligence & Space	External	6/30/2021	6/29/2022	\$6,329,762	
EPIC	FY21	Enhancing the Development of Land Models as a Full Component of the Coupled System year 3 extension	Elena Shevliakova Michael Barlage Justin Perket	GFDL	Internal	1/16/2022	1/15/2023	\$175,000	
USWRP	FY17	Application and Evaluation of the Finite-Volume Cubed Sphere Model (FV3) at Convection-Allowing Scales for Severe Weather Forecasting	Adam Clark	NOAA/NSSL OU/CIMMS NWS/SPC	Internal	7/1/2017	6/30/2018	\$305,000	
USWRP	FY17	OAR Hurricane Moving Nest	Sundaraman Gopalakrishnan Frank Marks	AOML HRD	Internal	7/1/2017	6/30/2018	\$250,000	
Obs	FY17	Airborne Phased Array Radar (APAR) Development and Risk Mitigation Project	Robert Atlas Brian Dahl W-C Lee	NOAA/OAR/AOML CIMAS NCAR	External	6/1/2017	5/31/2018	\$75,000	
S2S	FY17	Maintenance and Development of the Subseasonal to Seasonal Prediction Project (S2S) Database and Tools in IRI Data Library	Andrew Robertson	Columbia University	External	7/1/2019	9/30/2020	\$173,235	
HPC	FY18	HPC Support for OAR	William B. (Trey) Breckenridge Whitley Alford	Mississippi State University	External	10/1/2018	9/30/2022	\$12,000,000	NA18OAR4590435
S2S / NMME	FY19	Continuation of the North American Multi-Model Ensemble (NMME Phase-2): Development, Operation and Seasonal Prediction Science	Ben Kirtman Andrew Robertson	University of Miami Columbia University	External	10/1/2018	9/30/2021	\$463,451	
S2S / SubX	FY19	Extending the Real-Time Multi-Model Sub-Seasonal Predictive Capability	Ben Kirtman Kathy Pegion	University of Miami George Mason University	External	8/1/2019	9/30/2021	\$175,000	
SSM	FY19	Developing New Capabilities and Research Applications for the National Water Model Over the Southeastern US	Jamie Dyer Andrew Mercer	Mississippi State University	External	9/1/2019	8/31/2023	\$1,477,676	NA19OAR4590411
HPC	FY19	HPC Support for OAR, Phase III	William B. (Trey) Breckenridge	Mississippi State University	External	10/1/2019	9/30/2023	\$11,000,000	NA19OAR4590410
PGC	FY20	Leveraging GEFSv12 Reforecasts to Improve National Blend of Models Precipitation Forecasts	Thomas Hamill	NOAA/PSL	Internal	6/1/2020	7/31/2021	\$194,877	PGC01.FY20.1
PGC	FY20	Identifying physical processes responsible for tropical UFS errors and their relation to UFS week 2-4 precipitation predictability in the western US	Juliana Dias Elizabeth Thompson Shan Sun	NOAA/PSL NOAA/GSL CIRES	Internal	7/1/2020	6/20/2021	\$240,077	PGC02.FY20.1
PGC	FY20	High-Resolution Precipitation Reanalysis (HRPR)	Jian Zhang Micheal Simpson Kenneth Howard	NOAA/NSSL NOAA/GSL OU/CIMMS	Internal	6/1/2020	5/31/2021	\$321,050	PGC03.FY20.1
PGC / ESPC	FY20	Impact of the western boundary currents on extreme precipitation: A case study in the Atlantic Ocean from along-transect measurements and high-resolution model simulations.	Shenfu Dong Gregory Foltz Ulises Rivero	NOAA/AOML	Internal	7/1/2020	6/30/2022	\$188,400	
PGC / S2S	FY20	A Proposal to NOAA/OAR and WPO Internal FY20 NOAA Solicitation - Innovative Research for the Precipitation Prediction Grand Challenge	Chidong Zhang Yolande Serra Nicholas Bond Cliff Mass	NOAA/PMEL PMEL/JISAO UW ATMO	Internal	6/1/2020	5/31/2021	\$340,134	
PGC / S2S	FY20	An optimized hybrid seasonal forecast system for U.S. regional precipitation in late-summer to mid-fall based on inter-basin SST and convection parameters	Sang-Ki Lee H. Lopez G.R. Foltz R C. Perez M. Alexander	NOAA/AOML NOAA/PSL	Internal	6/1/2020	5/31/2022	\$204,400	
PGC / S2S	FY20	Using high-resolution simulations (LES and CAM) from field experiments to improve physics parameterizations for medium-range and sub-seasonal forecasting	Joseph Olson Shan Sun	NOAA/GSL	Internal	7/1/2020	6/30/2022	\$241,735	
FireWx / S2S	FY21	Fire Weather Prediction and Associated Hazards to Support Decision-making Across Time Scales	Jennifer Mahoney Ariel Stein Robin Webb	NOAA/GSL NOAA/ARL NOAA/PSL	Internal	7/1/2021	6/30/2022	\$600,000	