

OUC TECHNICAL SERVICE CONTRACT - Attachment 1

Contribution	OUC / QNLMST	TAMU	NCAR	Deliverables Year 1	Deliverables Year 2	Deliverables Year 3	Funding Requirement Yr1 (FTE)	Funding Requirement Yr2 (FTE)	Funding Requirement Yr3 (FTE)	Total 3yr funding (FTE)	STAFFING	Annual Estimated Dollars (K)	Total Estimated Dollars (K)	Funding Source
Development and test of component models for the regional Earth system model	X			Develop and test data assimilation module for ocean component model	Develop and test data assimilation module for atmosphere component model	Develop and test data assimilation module for regional coupled model	1 FTE	1 FTE	1 FTE	3	OUC	\$40	\$120	OUC
Data sets for model validation	X			Develop a data base that includes hydrographic measurements, ARGO data, satellite observations and reanalysis data for validating model simulations and data assimilation	Provide wind and surface heat flux measurements from the C-KEO buoy for validating coupled regional model	Develop real-time data from the C-KEO buoy	0.5 FTE	0.5 FTE	0.5 FTE	1.5	OUC	\$20	\$60	OUC
Implementation and execution of regional forecast experiments	X			Prepare initial and boundary conditions for regional climate model	Conduct seasonal-to-decadal hindcast experiments	Carry out forecast experiments	0.5 FTE	0.5 FTE	0.5 FTE	1.5	OUC	\$20	\$60	OUC
Assessment of model outputs and forecast accuracy	X			Develop metrics and strategies for model validation	Validate model hindcast experiments	Validate model forecast experiments	0.5 FTE	0.5 FTE	0.5 FTE	1.5	OUC	\$20	\$60	OUC
Hosting visits by TAMU and NCAR researchers, including participation in tutorials and colloquia. These visits will be of short-term	X			OUC hosts one visit of TAMU and NCAR researchers for discussion of the project	OUC hosts one visit of TAMU and NCAR researchers for discussion of the project	OUC hosts one visit of TAMU and NCAR researchers for discussion of the project					OUC			OUC

Graduate students, post-docs and visiting scholars to NCAR and TAMU. These visits will be of varying length from weeks to years	X		TAMU hosts up to 3 post-docs and visiting scholars and will send some of these visitors to NCAR to work on the project	TAMU hosts up to 3 post-docs and visiting scholars and will send some of these visitors to NCAR to work on the project	TAMU hosts up to 3 post-docs and visiting scholars and will send some of these visitors to NCAR to work on the project					TAMU			CSC
Coordination of the NLMSTQ activities	X					0.15 FTE	0.15 FTE	0.15 FTE	0.45	OUC	\$6	\$18	OUC
Development and test of regional model, including implementation of new component models		X	Provide the existing coupled regional model to NCAR and work with NCAR for the development of the R-CESM	Collaborate with NCAR to develop the ICDF for ocean and atmosphere component models	Collaborate with NCAR to develop a prototype integrated regional-global CESM using the ICDF	0.5 FTE	0.5 FTE	0.5 FTE	1.5	TAMU	\$86	\$258	OUC
Validation of modeling capabilities using publicly accessible ground-based and satellite data and retrieval products		X	Work with NCAR and OUC to complete CRCM hindcast simulations in data-ocean configuration and validate the hindcast using observations	Work with NCAR and OUC to complete CRCM hindcast simulations in fully coupled configuration with restoring temperature and salinity in the ocean	Work with NCAR and OUC to complete CRCM hindcast simulations in fully coupled configuration with restoring temperature and salinity in the ocean and atmospheric lateral boundary conditions	0.5 FTE	0.5 FTE	0.5 FTE	1.5	TAMU	\$86	\$258	OUC
Enable an increased NCAR staff engagement in education programs.		X	Host NCAR scientists to visit TAMU	Host NCAR scientists to visit TAMU	Host NCAR scientists to visit TAMU	0.2 FTE	0.2 FTE	0.2 FTE	0.75	NCAR	\$50	\$180	TAMU
Coordination of collaboration activities		X	Funds to support overall project coordination	Funds to support overall project coordination	Funds to support overall project coordination	0.083	0.083	0.083	0.25	TAMU	\$34	\$90	OUC
Support for OUC visits to TAMU		X	Living compensation for OUC postdocs and visiting scholars	Living compensation for OUC postdocs and visiting scholars	Living compensation for OUC postdocs and visiting scholars	n/a	n/a	n/a	n/a	TAMU	\$34	\$102	TAMU
Assistance and administrative support of collaborative activities		X	Technical assistance for activity coordination	Technical assistance for activity coordination	Technical assistance for activity coordination	0.25 FTE	0.25 FTE	0.25 FTE	0.75	TAMU	\$18	\$54	TAMU
Support for TAMU visits to NCAR		X	travel for TAMU personnel to NCAR	travel for TAMU personnel to NCAR	travel for TAMU personnel to NCAR	n/a	n/a	n/a	n/a	TAMU	\$15	\$45	TAMU

Computation Processing	X	Access to TAMU computation facilities consisting of a minimum of 10 million CPU hours per year.	Access to NCAR computation facilities consisting of a minimum of 10 million CPU hours per year.	Access to NCAR computation facilities consisting of a minimum of 10 million CPU hours per year.	n/a	n/a	n/a	n/a	TAMU			TAMU
Ongoing transfer through TCCS to TAMU of CESM (Community Earth System Model) model coupling infrastructure, including the associated Software Engineering support	X	Work with TAMU to develop a regional version of the CESM (R-CESM)	Work with TAMU to develop the ICDF for ocean and atmosphere component models	Work with TAMU to develop a prototype integrated regional-global CESM using the ICDF and carry out a test decadal forecast experiment	0.5 FTE	0.5 FTE	0.5 FTE	0.75	NCAR	\$132	\$396	OUC
Execution of global forecast experiments and provision of the regional output from these experiments required by TCCS /TAMU for regional modelling and forecasting.	X	Work with TAMU to complete CRCM hindcast simulations in data-ocean configuration and validate the hindcast using observations	Work with TAMU to complete CRCM hindcast simulations in fully coupled configuration with restoring temperature and salinity in the ocean	Work with TAMU to complete CRCM hindcast simulations in fully coupled configuration with restoring temperature and salinity in the ocean and atmospheric lateral boundary conditions	0.3 FTE	0.3 FTE	0.3 FTE	0.75	NCAR	\$81	\$243	OUC

Annual Est. Dollars (K)	Total Est. Dollars (K)
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OUC funds to OUC	\$106	\$318
OUC funds to TAMU	\$206	\$618
OUC funds to NCAR	\$213	\$639
TAMU funds to NCAR	\$50	\$150
TAMU funds Other	\$67	\$201
Total OUC funds	\$525	\$1,575
Total TAMU funds	\$117	\$351
Total NCAR funds	\$0	\$0

Estimated OUC salary @ \$40K annually

Estimated NCAR salary @ \$239K annually

estimated TAMU Salary @ ~\$200K annually