LASSO Expansion Scenario

<Scenario Name>

<Authors>

A White Paper Submitted to the

Atmospheric Radiation Measurement User Facility

<Return to lasso@arm.gov by 8 March 2019>

# 1. Short Description

<A 1–3-sentence short description summarizing the scenario.>

# 2. Science Drivers

<List the primary science drivers motivating this scenario. Relevant and addressable science drivers will be an important aspect of the decision-making process.>

# 3. Full Description

<Describe the scenario in detail. Address how it would contribute toward informing the science drivers as well as be of use generally for broader applications. Describe why this scenario would be preferred over alternative approaches for the same science drivers. What are pluses and minuses to this approach? How would this scenario add value to ARM’s suite of observations already available? Note that specific details are to be included in the designated sub-sections.>

# 3.1. Model Configuration

<Describe the model configuration for this scenario. Include the domain horizontal size, vertical extent, and grid spacing; model physics considerations, such as handling of clouds and the subgrid-scale parameterization; and other model-specific details that would differentiate this scenario from others. What trade-offs are being made to balance computational cost? What is an estimate of the computational cost to simulate one case?>

# 3.2. Input Data Such as Initial, Forcing, and Boundary Conditions

<What are the data sources for large-scale forcing, surface and lateral boundary conditions, and other input data, as appropriate? Describe what observations would be needed to run the model and identify which of these would be from ARM versus other sources. What additional instrumentation would be needed to obtain input data?>

# 3.3. Evaluation Data and Approach

<Describe the observation data sets that would form the suite of observations included in the LASSO data bundles. These should be tailored to the specific science questions and model configuration with an emphasis on evaluating the simulations and adding value to the ARM observations. What additional observations would you recommend that ARM add to the site in order to build a more robust observation suite for this scenario?>

# 3.4. Potential Issues and Proposed Mitigations

<Model configurations and available observations rarely provide an ideal marriage of information to address a wide range of science questions. Also, models do not perfectly represent reality. What are potential issues that would be faced by this scenario? What mitigations could lessen the impact of these issues?>