Presenter

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How are we communicating about the complexities of climate change?

The purpose of this presentation is to propose a framework for analyzing how communicators deal with scientific complexity (e.g., nuance, variability, uncertainty, interrelationships, and cross-disciplinary exchange). This framework includes four approaches that, while interrelated and scalable, prioritize four distinct outcomes:

(1) DETAIL: One option is to focus on technical—often quantitative and jargon-laden—understanding of research findings and models. Examples might include specific mathematical and chemical equations, variable parameterization, maps, or data graphs. This "detail" approach is well-suited to standards-based or site-specific programs where they serve as examples to support an overarching goal. Measurable outcomes can range from objective recall to open-ended response, but with an emphasis on precise, technically correct information.

(2) GESTALT: A second option is to promote a more general appreciation for changes at a systems level, with some of the details intentionally simplified to focus on key concepts. Examples may include sea ice albedo feedback loops or temperature trend analysis. This "gestalt" approach is often well-suited for introductory, summary, or overview programs with more diverse audiences, more general audiences, and additional objectives. Measurable outcomes can be objective but must allow for audience members to paraphrase.

(3) ANALOGY: A third option is to focus on audience-centered analogies as conceptual springboards. Audiences navigate complex systems every day that can serve as models for an affirming, intuitive appreciation for scientific complexity. Broad analogies involving sports, health, pop-culture, games, or automotive mechanics may be good, safe "common denominators" for general public audiences. Other focused audiences, such as cultural or professional groups, may benefit from more carefully-researched analogies. This approach may also include hypothetical "thought experiments" where the audience members mentally walk through a situation and derive their own understanding. Measurable outcomes may range from objective to subjective, but must allow for audience members to paraphrase and require communicator familiarity with the analogy (and preferably its "native" jargon).

(4) TRUST: Option 4 is to leverage consensus, authenticity, authority, and identity to invite the audience to *trust* climate scientists. This approach can involve appeals to professional trust (i.e., audience members usually expect trust in their own professional or hobby domains), organizational legacies and

mission statements, scientific consensus, and examples of third parties who agree. The trust approach is often well-suited for conversational settings that rely (at least to some degree) on open ended questions and a spontaneous (even if carefully researched, trained, and rehearsed) exchange. The limited control of pre-defined outcomes and potential for audience identity conflicts, however, can create anxiety for both communicators and supervisors. Measurable outcomes are often open-ended, subjective, and values-based; different situations, presentations, and conversations may also be difficult to compare or contrast.

This framework for understanding complexity should not be confused with potential (though related) frameworks for approaching risk assessment, decision making (i.e., actions), or other areas. True program goals may lie in those other areas, but communicators should be self-aware to separate them as much as possible. Conflating various communications goals and dimensions can significantly increase the potential for barriers to effective communication.