DKIST CSP Workshop Freiburg, Germany 16 January 2018

DKIST Critical Science Plan Workshop #3: Structure and Dynamic Evolution of Photospheric Magnetic Fields

> Introduction to the Critical Science Plan; and Life cycle of a Science Use Case

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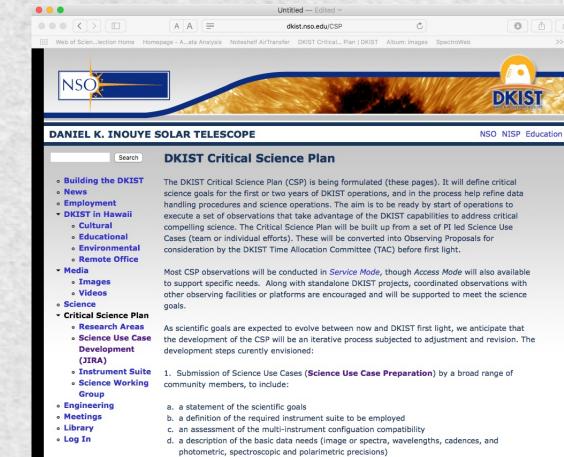
1. Aim: By science first light, to be ready, as a community, to execute a set of observations exploiting the DKIST capabilities to address critical, compelling science.

2. How: Bottom-up approach, community based. Workshops one of the tools; NOT exclusive

http://dkist.nso.edu/CSP

Critical Science Plan Structure:

- Research Areas
- Research Topics
- Science Use Cases



e. a summary of the observing strategy and any joint facility coordination needs

2. How: Compile an extensive set of well defined, complementary Science Use Cases, detailing the topics to be investigated, the reasons why DKIST is necessary, and the type of DKIST observations necessary to address the science.

- 1. Formulate science context and goals; specify why DKIST
- 2. Identify observational needs (spectral lines of interest, pattern, cadence, sensitivities)
- 3. Determine useful DKIST instrument suite
- 4. Assess instrument performance capabilities

3. How to optimize the process:

Role of the DKIST Science Working Group (DKIST SWG)

- SWG will try to articulate the community vision of essential DKIST science through the Critical Science Plan
- The SWG will identify Science Use Case overlap and suggest team consolidation
- The SWG will assess whether the science proposed in the Science Use Cases requires DKIST capabilities
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- DKIST Time Allocation Committee is final arbitrator, and will determine the order by which the Observing Proposals are executed

4. Feedback to DKIST. The existing (and future) Science Use Cases will inform the project about:

- Science most relevant to the community;
- Instruments, lines, modes of operation most requested (desired?) by the community;

Allow definition of efficient operation, data management

As a community we must:

- understand forthcoming capabilities
- define science goals
- compile Science Use Cases
- coordinate to form a complementary set of PI lead teams
- convert Science Use Cases into PI led Observing Proposals

This will enable:

- Service Mode observations
- Scientific analysis
- PI led publication of first-light results

Important Points:

- This process will likely be iterative CSP structure (that you see on the website) is intended as a helpful but non-rigid framework and the science will evolve.
- 2. The CSP process is not exclusive (all welcome) nor unique (direct submission of observing proposals to the NSO DKIST Time Allocation Committee (TAC) under a standard submission and review process will also be possible). The CSP (and this workshop) advantage is informational.
- 3. Observing proposals developed as a result of participation in the DKIST Critical Science Plan effort (including this workshop) will be reviewed by the DKIST TAC along with proposals submitted outside of the CSP structure.
- 4. There is *no* automatic conversion of Science Use Cases to Observing Proposals – success is dependent on continued engagement beyond this workshop proper and beyond the completed Science Use Case.
- 5. The development of the CSP in advance of the start of operations helps the project beyond science definition it helps in the development of essential operations and data management tools