CCAT-PRIME
PUBLICATIONS POLICY

P-SCDC-STD-0001-B

This Policy, written by the CCAT-prime Science Working Group (SWG), is derived from the ACT Publication Policy document written by Arthur Kosowsky, which itself was adapted from the publication policy for the WMAP project, written by Charles Bennett, which was adapted from the COBE publication policy, written by Rainer Weiss.

REVISION HISTORY

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
A	T. Herter	13 Nov 2020	T. Herter	13 Jan 2021	Initial Release
B	J. Blair	1 Mar 2021	T. Herter	25 Mar 2021	Reissued to conform with CCAT publication protocols

APPLICABLE DOCUMENTS

The requirements in the following documents apply, but this document supersedes if there is a conflict.

CCAT-p Document No.	Version	Title

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1. INTRODUCTION AND BACKGROUND

The CCAT-Prime facility is a very wide-field, 6-m aperture telescope being built by the CCAT consortium. With very high surface accuracy, and sited at 5600m elevation on Cerro Chajnantor in Chile, the telescope is optimized for wide-field, high surface brightness sensitivity mapping in the submm/mm wave telluric windows. The principal science goals of the CCAT-Prime Project include:

1) Reveal the dynamic interstellar medium in the Milky Way and nearby galaxies using submillimeter molecular and fine-structure lines with high spectral resolution spectroscopy;
2) Trace the cosmic history of dusty star formation through large field imaging in the submm continuum;
3) Trace the formation of the first star-forming galaxies that reionize the Universe via wide-field spectroscopy;
4) Constrain feedback mechanisms and test cosmological simulations by measuring the thermodynamic properties of galaxy clusters via the Sunyaev-Zeldovich effects on the cosmic microwave background (CMB);
5) Measure CMB Rayleigh scattering for the first time to improve constraints on new particle species; and
6) characterize polarized dust foregrounds that limit CMB constraints on inflation.

The purpose of this document is to help ensure that CCAT-prime based publications are materially accurate, and that the people and institutions involved in the work are treated fairly regarding authorship and credit for contributions. Clearly it is impossible to create a document which covers every possibility – it is our intension here to ensure due recognition to all contributors to the project. This Policy Document therefore summarizes the rights and responsibilities of the CCAT-prime Science Steering Committee and the greater Project Science Team.

This Policy applies throughout the time period during which CCAT-prime is actively performing scientific observations, until the final data release, and to any related official CCAT-prime projects until their completion. All CCAT-prime data and analysis will be released to the public in a timely manner.

This Policy applies to publications defined in the broad sense of any release of CCAT-prime related data or information to anyone outside the CCAT-prime Science Team, including press releases, popular and professional articles whether refereed or not, web sites, books, circulars, computer files, text, graphics, and lecture content and materials based on information not previously released.

The CCAT-prime project will perform scientific analysis of the data and obtain complementary data sets from other facilities as necessary for high scientific yield. The project will also produce and release maps from each of the science programs along with full documentation of instrumentation, data reduction processes, and source catalogues in a timely manner (nominally would be within a year after a data set is complete enough for analysis, however, special cases may apply for shorter or longer timescales). The policy outlined here refers to methods, instrumentation, and analysis of the CCAT-prime data, astronomical follow-up observations based on CCAT-prime data, and analysis based on CCAT-prime data that is combined with external data sets. Other programs can be brought into the domain of this Policy by a vote of the CCAT-prime Science Steering Committee. Science programs that are more loosely related to the Project, such as theoretical, or stand-alone analysis base on complementary data may be carried out independently of the Policy.

2. THE CCAT-PRIME SCIENCE COMMITTEE

The CCAT-Prime Science Steering Committee (the “Science Steering Committee”) will consist of scientists appointed by the Director in consultation with the CCAT Board with numbers proportional to institution representation on the CCAT Board and a Chilean representative. Current Steering Committee members are to-be-determined. The “CCAT-prime Science Team” (the “Science Team”) will refer to the Science Steering Committee plus the other members of the CCAT-prime collaboration with a scientific interest in the Project.

The Science Steering Committee shall have the authority to add additional members to the Science Team as it deems necessary. Science Team members can nominate new members to the Science Steering Committee for approval. The Science Steering Committee shall consult with the Science Team before adding any new members above the post-doctoral level.

Responsibilities of the Director

The Director, with the support of the Project Scientist, shall:

- Receive and share progress reports from team members on their tasks and facilitate communication among members of the Science Team.
- Ensure that the established publication review procedures given below are followed in a timely manner.
- Keep records of people who have access to CCAT-prime data and information including publications and presentations.
- Decide disputes or disagreements among members of the CCAT-prime Science Team related to the interpretation or implementation of any policies outlined in this document.

3. RESPONSIBILITIES OF THE CCAT-PRIME SCIENCE STEERING COMMITTEE

The CCAT-prime Science Steering Committee shall:

- To the best of their ability, guarantee the accuracy of all data, information, and publications about CCAT-prime prior to their public release. To fulfill this responsibility, the Science Steering Committee shall review all publications and (new) publicly presented materials (excepting "stock material") prior to presentation or submission for publication, as described below under the heading of Publications and Lecture Materials Clearance. In this case "public" means both the general public and the scientific community outside the CCAT-prime Project.
- Guarantee that the text, authorship, and references and acknowledgment list of each publication fully and fairly represent all contributions made to the publication, consistent with this Policy document. It is normally the responsibility of the lead author to bring authorship information forward to the Science Steering Committee for approval.
- Provide standard text for acknowledgement of the facility etc. for approval by the CCAT Steering Committee.
- Decide any issues of disputed credit or authorship. The Science Steering Committee will approve all proposed CCAT-prime scientific paper topics and assign lead authors to CCAT-prime scientific publications in cases of dispute.
- Review all requests from CCAT-prime team members to add additional collaborators or observational programs to the CCAT-prime Project. In addition, the Science Steering Committee can recommend to the CCAT-prime Board that a member be removed from the collaboration for cause.
- Maintain a repository of approved topics and materials for use in presentations by team members.

4. THE SCIENCE TEAM MEMBERSHIP

The list of founding members of the Science Team will be shared when this Policy Document is discussed by the CCAT Board. This team can be modified by the CCAT Board prior to approval of the Policy Document. Subsequent membership on the Science Team is granted by the Science Steering Committee and may be proposed as follows:

- Notify the Science Steering Committee of intended or proposed additions to the CCAT-prime Science team. Members of the Science team shall not imply that any outside person will be accepted as a CCAT-prime Science Team member prior to a decision by the Science Steering Committee.
- Show and explain this Policy to both present and potential collaborators, students, and contractors. Obtain their signatory (email) agreement with the policy, as well as their commitment to provide specific assistance or products. Approval of team membership by the Science Steering Committee is required prior to giving collaborators access to actual CCAT-prime data or information.

Notes on memberships

(A) Graduate students working with Science Team members will normally automatically have access to CCAT-prime data or information as required.

(B) Postdocs/Research Associates (or equivalent) working with Science Team members will normally automatically have access to CCAT-prime data and information as required.

(C) Independent researchers will need approval by the Science Steering Committee for membership on the Science Team.

(D) Membership in the Science Team expires upon leaving member institutions and obtaining employment elsewhere unless explicitly granted by the Science Team and approved by the Science Steering Committee. Unless granted, such members will move to an external collaborator status for all further proceedings, with the exception of publications that have already been started at the time of leaving.

5. SCIENCE TEAM RESPONSIBILITIES

To ensure timely publication of science, the CCAT-prime Science Team shall:

- Submit proposed publications and proposed primary authors to the Science Steering Committee for approval prior to initiating the writing. The Project Scientist will maintain and update a list of approved publications, posted on the internal CCAT-prime website. In the interests of fairness and efficiency, a team member can normally serve as the primary author on only one CCAT-prime publication in preparation at a time. If a team member wishes to serve as primary author on more than one CCAT-prime publication at a time, they will be expected to provide evidence that they have the resources available. In case multiple proposals are received on the same topic, the Science Steering Committee may elect to give preference to a less senior team member, or one that is not yet leading another publication, balanced against contributions of the proposers to the discovery being reported or the project as a whole.
- Upon approval from the Science Steering Committee, the first authors shall send the Science Team a brief abstract, inviting collaboration. The Science Steering Committee's approval will be contingent on timely progress on the work; when a year or more passes with no progress reported, the proposed publication may be reviewed again. The Science Steering Committee may also suggest additional first authors based on the work's progress.
- Carry out specific investigations and write specific publications with resources and schedules determined in negotiation with the institution of the team member(s).
- Post copies of technical and scientific reports on the CCAT-prime web site and notify the rest of the Science Team and Science Steering Committee of their presence. Ensure that talks or presentations do

not use any CCAT-prime related materials which have not been approved for release, including technical specifications, data, or analysis. All approved materials will be available on the web.

To ensure that data is not inadvertently released, Science Team members shall:

- Protect CCAT-prime data from unauthorized use, including protecting computer files and passwords.
- Notify the Project Scientist promptly of the names of any collaborators, students, and contractors to whom data and/or information have been made available. This information should also be posted on the web.
- Ensure that talks or presentations do not use any CCAT-prime related materials which have not been approved for release, including technical specifications, data, or analysis. All approved materials will be available on the web.

Science Team members may:

- Have access to the archive data from the CCAT-prime telescope and from associated astronomical surveys (as determined by MoUs by the project).
- Speak publicly about CCAT-prime and its data, providing the CCAT-prime related content of the talk has been approved for release, as described below. Team members must notify the rest of the Science Team about all talks which discuss CCAT-prime related content and post talk dates, titles, and locations on the web site.
- Write articles for publication and submit them for publication following the reviews and approvals described in this Policy.
- Make agreements with other team members to collaborate on articles or research projects.
- Collaborate with outside co-authors on topics related to CCAT-prime with approval of the Science Steering Committee.

Team members may not:

- Make any unilateral agreement guaranteeing a student or anyone else an exclusive right to a research topic or authorship of an article based on CCAT-prime data or on restricted CCAT-prime information. Any such proposed agreement must be presented to the Science Steering Committee for prior approval.

6. CREDIT AND AUTHORSHIP

(A) CCAT-prime papers are designated as either “opt-out” or “opt-in” papers. Opt-out papers are generally the first paper from a new instrument, or papers of broad and general interest where acknowledgment of all contributions of any size to the CCAT-prime effort is appropriate. The opt-out author list will include all CCAT-prime contributors to the data on which the paper is based, whether direct or indirect. If a proposed author does not feel they have made sufficient contributions to warrant inclusion on the list or does not want to be included for any other reason, they can remove their names by request prior to the paper submission. “Opt-in” papers will include an author list restricted to those CCAT-prime collaborators who specifically request authorship after reviewing the paper draft.

(B) Any Team member who writes or contributes substantially to work leading to the publication and has reviewed the publication shall be included in the authorship list, if that person so chooses, subject to the general review and approval processes described in this Policy.

(C) The default author ordering policy for CCAT-prime papers is that one primary author, followed by a small first tier group of the main contributing authors will be listed first, followed by the other authors in alphabetical order (typically the majority of the author list). Tenured (or equivalent) collaborators will normally be named in the alphabetical list, although, exceptions to this guideline may be approved by the Science Steering

Committee. For publications involving multiple data sets, the alphabetical author list may be split into two tiers. The Science Steering Committee will ensure that contributions of junior team members in particular are appropriately recognized in the author listing and shall have the authority to approve alternative authorship ordering proposed for specific papers if a strong reason is presented. Any disputes shall be decided by the Science Steering Committee.

(D) Normally, anyone who is listed as an author of a publication must read and review the entire publication within two weeks of its being posted on the CCAT-prime web site for review.

(E) Students, collaborators, software contractors, engineers and managers may be co-authors of scientific publications if they contributed in a long-term sustained and significant manner to the CCAT-prime effort. The co-authorship is to be decided by the Science Steering Committee based on these conditions. Such co-authors may also speak publicly about CCAT-prime if they use approved lecture materials.

(F) The Science Steering Committee shall have the authority to remove a name from the author list of any particular paper in the event that the person in question has not made a substantial contribution to any part of the work on which the publication depends or has not met the obligations stated in this document.

(G) Data collected by the CCAT-prime project will be made publicly available in a timely manner. Once data become public, CCAT-prime Team members continue to be bound by the restrictions outlined in this document in relation to the newly public data for six months. After a period of six months, CCAT-prime Team members may use the public CCAT-prime data in publications without approval by the Science Steering Committee. However, all CCAT-prime Team members are encouraged to offer co-authorship to all appropriate CCAT-prime members of any publications using CCAT-prime data beyond this six-month period and to report plans for such publications to the Science Steering Committee, as described above. Team members are required to present to the CCAT-prime team a draft of any publication using CCAT-prime data beyond this six-month period, at least one week prior to submitting the work for publication or making it public on a web site or other medium.

7. MEMBERSHIP IN OUTSIDE COLLABORATIONS

Members of the CCAT-prime collaboration may accept invitations to participate in other collaborations with similar science goals. Any member of the CCAT-prime collaboration considering accepting such an invitation must notify the CCAT-prime Science Steering Committee and describe how their commitments to CCAT-prime will be impacted. The CCAT-prime member may not discuss non-public CCAT-prime information with the other collaboration, including plans and status, without permission from the Science Steering Committee. The CCAT-prime member must obtain permission from the Science Steering Committee prior to using any non-public code originally written for CCAT-prime for purposes of the other collaboration.

Collaboration membership may lead to potential conflicts of interest, and the CCAT-prime collaboration member must promptly bring any conflict to the attention of the Science Steering Committee. Conflicts of interest include any situation where advancing the interests of the outside collaboration would negatively impact the CCAT-prime collaboration. This might include, for example, allocation of limited resources or observing time, conference talk invitations to publicize one collaboration and not the other, policies of the outside collaboration which would impinge on the collaborator's work for CCAT-prime, or undue demands on the collaborator's time which prevents them from meeting CCAT-prime responsibilities.

8. PROCEDURE FOR FOLLOW-UP OBSERVATIONS

To facilitate obtaining observing time on external instruments for follow-up observations of sources discovered in CCAT-prime data, it may be beneficial for CCAT-prime collaborators to participate in joint observing proposals with people external to CCAT-prime. The following provisions apply to such observing proposals with participation by members of the CCAT-prime Collaboration.

(A) Any point source paper that depends only on CCAT-prime data, existing public data, and/or follow-up observations that were obtained exclusively by CCAT-prime members will follow the general CCAT-prime publication policy.

(B) For follow-up observations of unpublished CCAT-prime sources, the coordinators will have the latitude to arrange collaborations to propose or pursue these observations without a specific Memorandum of Understanding if the following conditions are satisfied:

- CCAT-prime collaborators are notified as soon as a new externally collaborative follow-up proposal is submitted for review by a time allocation committee and as soon as that proposal is accepted or rejected.
- Before any external collaboration is finalized, CCAT-prime collaborators will be given the opportunity to comment on its objective, scope, and membership.
- External collaborators will only have access to relevant source catalog data and will not be allowed to publish or pursue additional follow-up of CCAT-prime point sources on their own, until these sources become public.
- Papers resulting from observations including external collaborators must undergo the same process of internal CCAT-prime review as all other papers before they are submitted for publication. Follow-up alerts for time-variable sources sent via mechanisms such as the Astronomer's Telegram or the Gamma-ray Coordinate Network are exempt from this requirement if they result from previously approved analyses.
- Co-authorship on papers resulting from external collaborations will be offered to all CCAT-prime collaborators in accordance with this publication policy. The CCAT-prime policy on author order may be waived if necessary, to secure an agreement for external collaboration.

(C) For collaborative observations following up published CCAT-prime point source samples, the coordinators will endeavor to follow as closely as possible the above guidelines for unpublished point source samples if any significant aspect of the project was developed at the time samples were still proprietary. Coordinators are encouraged to continue working with the CCAT-prime collaboration when using its public data products, but they will not be bound by this policy when using purely public information.

9. PUBLICATIONS AND PRESENTATION MATERIALS CLEARANCE

(A) Publications, lecture materials, press releases, and other public presentations describing instrument-specific hardware, observing plans, and non-public data and its interpretation, must be approved by the Science Steering Committee for accuracy, fairness, and presentation. Any such release must be posted to the web site for the Science Team to review. Normally authors must allow two weeks for the necessary reviews.

(B) To facilitate preparation of talks and lectures, the Project will maintain an on-line archive of approved materials, both graphics and text, available to CCAT-prime team members. Beyond their use in talks and lectures, these materials may not be released to outsiders without Science Steering Committee approval. Purely cosmetic changes to previous presentations may be made without further approval.

(C) Team members shall avoid talking about subjects not already approved in interviews with news organizations or in conversations with colleagues outside the CCAT-prime Team.