CyberWay Annual Report Form

The following table is a copy of the annual report form on <http://www.research.gov>. Please fill in the form and return it together with supplement documents (if any) to Dr. Ziheng Sun ([zsun@gmu.edu](mailto:zsun@gmu.edu)). Dr. Sun will organize and combine them into one report for Professor Di’s review before the final submission.

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**Accomplishments - What was done? What was learned?**

If there is nothing significant to report during this reporting period, please check "Nothing to Report" if applicable.

\* Required fields

Top of Form

* **\* What are the major goals of the project?** Characters Remaining: **8000**

**As stated in the proposal, OSU will**

* + **1. Produce and provide ASR data access (through NCAR CISL).**
  + **2. Provide data support for ASR.**
  + **3. Provide intellectual input for EarthCube Cyberway project.**
  + **4. Participate in an integrated teleconnection analysis between COLA products and OSU products to enable new scientific discovery, e.g., the connection of Arctic changes to mid-latitude and tropical climate dynamics.**
* **\* What was accomplished under these goals (you must provide information for at least one of the 4 categories below)?**  more information about what was accomplished under these goals
  + Major Activities: Characters Remaining: **8000**
  + **1. High resolution ASRv2, 15-km (2000-2016) has been produced and been delivered to NCAR RDA server.**
  + **2. OSU also provide sample ASR data and short document to GMU.**
  + **3. OSU has participated monthly Cyberway meetings. We have provided intellectual input and technical suggestions on the project.**

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* + Specific Objectives: Characters Remaining: **8000**
  + Significant results: Characters Remaining: **8000**

**ASRv2, 15-km (2000-2016) data is available at NCAR CISL RDA server http://rda.ucar.edu/datasets/ds631.1**

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* + Key outcomes or Other achievements: Characters Remaining: **8000**

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* **\* What opportunities for training and professional development has the project provided?**

more information about opportunities for training and professional developmentmore information about opportunities for training and professional developmentNothing to report

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* **\* How have the results been disseminated to communities of interest?**

more information about how the results have been disseminated to communities of interestNothing to report

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| **ASR data has been generated a wide variety of interests in Arctic research communities.**  **Here are some recent publications based in part or entirely on ASR:**  **Akperov et al., 2018: Cyclone activity in the Arctic from an ensemble of regional climate models (Arctic CORDEX). J. Geophys. Res.: Atmospheres, 123, 2537-2554, https://doi.org/10.1002/2017/JD027703.**  **Bromwich, D., A. Wilson, L. Bai, Z. Liu, M. Barlage, C. Shih, S. Maldonado, K. Hines, S.-H. Wang, J. Woollen, B. Kuo, H. Lin, T. Wee, M. Serreze, and J. Walsh, 2018: The Arctic System Reanalysis Version 2. Bull. Amer. Meteor. Soc., 99, 805-828, doi: 10.1175/BAMS-D-16-0215.1.**  **Kohnemann, S. H. E., G. Heinemann, D. H. Bromwich, and O. Gutjahr, 2017: Extreme warming in the Kara Sea and Barents Sea during the winter period 2000-2016. J. Climate., 30, 8913-8927, doi: 10.1175/JCLI-D-16-0693.**  **Kolstad, E. W., 2017: Higher ocean wind speeds during marine cold air outbreaks. Q. J. R. Meteorol. Soc., 143, 2084-2092, doi: 10.1002/qj.23068.**  **Smirnova, J., and P. Golubkin, 2017: Comparing polar lows in atmospheric reanalyses: Arctic System Reanalysis versus ERA-Interim. Mon. Wea. Rev., 145, 2375-2383, doi: 10.1175/MWR-D-16-0333.1.** |
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* **\* What do you plan to do during the next reporting period to accomplish the goals?**
* Nothing to report

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| * + - 1. **1. Complete ASR 2017 run, and deliver it to NCAR CISL RDA server.**       2. **2. An integrated teleconnection analysis on COLA products and OSU products will be performed, to examine the connection of Arctic changes to mid-latitude and tropical climate dynamics.** |
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**Supporting Files**

You may upload pdf files with images, tables, charts, or other graphics in support of this section. You may upload up to 4 pdf files with a maximum file size of 5 MB each.

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 **Please select a file.**

 Description (required if uploading a file). Please provide a description of the content contained in the attached file.

**Products**

**(Ziheng to all: please list your products here in any way you want. I will sort out them later. )**

**Submit New Product(s)**

Select the type of product you want to add to your report or upload multiple products using BibTex file.

Select Product:

**Journal or Juried Conference Paper**

**Bromwich, D., A. Wilson, L. Bai, Z. Liu, M. Barlage, C. Shih, S. Maldonado, K. Hines, S.-H. Wang, J. Woollen, B. Kuo, H. Lin, T. Wee, M. Serreze, and J. Walsh, 2018: The Arctic System Reanalysis Version 2. Bull. Amer. Meteor. Soc., 99, 805-828, doi: 10.1175/BAMS-D-16-0215.1.**

**Other Conference Presentation / Paper**

**Bromwich et al., 2018: Arctic System Reanalysis provides high-resolution accuracy for Arctic studies. SCAR/IASC Open Science Conference, June 19-23, 2018, Davos, Switzerland.**

**Bromwich et al., 2017: Improving the representation of the Greater Arctic with ASRv2. 5th International Conference on Reanalysis (ICR5), November 13-17, 2017, Rome, Italy.**

**Bromwich et al., 2017: The Arctic System Reanalysis. MOSAiC Implementation Workshop, November 13-16, 2017, St. Petersburg, Russia,**

**Other Product**

**Data:**

**NCAR CISL RDA server, ASR data** [**https://rda.ucar.edu/datasets/ds631.1/**](https://rda.ucar.edu/datasets/ds631.1/)

**Websites:**

**OSU Polar Meteorology Goup, ASR web:** [**http://polarmet.osu.edu/ASR/**](http://polarmet.osu.edu/ASR/)

**NCAR CISL RDA, ASR web:** [**https://rda.ucar.edu/datasets/ds631.1/**](https://rda.ucar.edu/datasets/ds631.1/)

**NCAR Climate Data Guide, ASR web:**

[**https://climatedataguide.ucar.edu/climate-data/arctic-system-reanalysis-asr**](https://climatedataguide.ucar.edu/climate-data/arctic-system-reanalysis-asr)

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--OR--

Nothing to report

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**Supporting Files**

You may also upload PDF files with images, tables, charts, or other graphics in support of this section. You may also upload up to 4 PDF files with a maximum file size of 5 MB each.

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 **Please select a file.**

 Description (required if uploading a file). Please provide a description of the content contained in the attached file.



### **Participants & Other Collaborating Organizations - Who has been involved?**

For NSF purposes, for separately submitted and awarded collaborative proposals, the PI should report progress on his/her institution's portion of the collaborative effort only.

In each of the subsections below, note which collaborators or contacts are involved in data contribution and/or management.

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* \* Required fields
* **\* What individuals have worked on the project?**

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| [**Name**](https://reporting.research.gov/rppr-web/rppr?d-7822565-p=1&d-7822565-o=2&d-7822565-s=0&execution=e1s6) | [**Most Senior Project Role**](https://reporting.research.gov/rppr-web/rppr?d-7822565-p=1&d-7822565-o=2&d-7822565-s=1&execution=e1s6) | [**Nearest Person Month Worked**](https://reporting.research.gov/rppr-web/rppr?d-7822565-p=1&d-7822565-o=2&d-7822565-s=2&execution=e1s6) | [**Status**](https://reporting.research.gov/rppr-web/rppr?d-7822565-p=1&d-7822565-o=2&d-7822565-s=3&execution=e1s6) | [**Previous Participant**](https://reporting.research.gov/rppr-web/rppr?d-7822565-p=1&d-7822565-o=2&d-7822565-s=4&execution=e1s6) | **Actions** |
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| Bromwich, David | Co PD/PI |  | Missing informationMissing information | -- | [Edit details](https://reporting.research.gov/rppr-web/rppr?execution=e1s6&_eventId=editParticipant&participantId=1) |
| **Wang, Sheng-Hung** |  |  |  |  |  |
| Kinter, James | Co PD/PI |  | Missing informationMissing information | -- | [Edit details](https://reporting.research.gov/rppr-web/rppr?execution=e1s6&_eventId=editParticipant&participantId=3) |
| Yu, Genong | Co PD/PI |  | Missing informationMissing information | -- | [Edit details](https://reporting.research.gov/rppr-web/rppr?execution=e1s6&_eventId=editParticipant&participantId=2) |

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 **\* What other organizations have been involved as partners?** Nothing to report

**NCAR CISL**

 **\* What other collaborators or contacts have been involved?** more information about other collaborators or contacts

**NCAR CISL, Data Support Section: Chi-Fan Shih**

List any other people or organizations involved in the project that were not separately reported as participants or partner organizations.

Nothing to report

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**Impact - What is the impact of the project? How has it contributed?**

INSTRUCTIONS - This component will be used to describe ways in which the work, findings, and specific products of the project have had an impact during this reporting period.

For NSF purposes, include, where appropriate, discussion of data resources and the acquisition of data skills. Include the emergence of new career paths, such as data scientists, or new disciplines.

If there is nothing significant to report during this reporting period, please check "Nothing to Report" if applicable.

more information about other collaborators or contacts

Top of Form

\* Required fields

* **\* What is the impact on the development of the principal discipline(s) of the project?** more information about the impact of the development of the principal discipline

Describe how findings, results, techniques that were developed or extended, or other products from the project made an impact or are likely to make an impact on the base of knowledge, theory, and research and/or pedagogical methods in the principal disciplinary field(s) of the project.

Nothing to report

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* **\* What is the impact on other disciplines?**

Describe how the findings, results, or techniques that were developed or improved, or other products from the project made an impact or are likely to make an impact on other disciplines.

Nothing to report

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* **\* What is the impact on the development of human resources?**more information about the impact on the development of human resources

Describe how the project made an impact or is likely to make an impact on human resource development in science, engineering, and technology.

Nothing to report

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* **\* What is the impact on physical resources that form infrastructure?**

Describe ways, if any, in which the project made an impact, or is likely to make an impact, on physical resources that form infrastructure, Including physical resources such as facilities, laboratories, or instruments.

Nothing to report

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* **\* What is the impact on institutional resources that form infrastructure?**more information about the impact on institutional resources that form infrastructure

Describe ways, if any, in which the project made an impact, or is likely to make an impact, on institutional resources that form infrastructure,

Nothing to report

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* **\* What is the impact on information resources that form infrastructure?**more information about the impact on information resources that form infrastructure

Describe ways, if any, in which the project made an impact, or is likely to make an impact, on information resources that form infrastructure,

Nothing to report

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* **\* What is the impact on technology transfer?** more information about the impact on technology transfer

Describe ways in which the project made an impact, or is likely to make an impact, on commercial technology or public use.

Nothing to report

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* **\* What is the impact on society beyond science and technology?** more information about the impact on society beyond science and technology

Describe how results from the project made an impact, or are likely to make an impact, beyond the bounds of science, engineering, and the academic world.

Nothing to report

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**Changes/ Problems**

**INSTRUCTIONS -**

The PI is reminded that the grantee is required to obtain prior written approval from the awarding agency grants official whenever there are significant changes in the project or its direction. See agency specific instructions for submission of these requests.

If not previously reported in writing to the agency through other mechanisms, provide the following additional information or state, "Nothing to Report", if applicable:

\* Required fields

**Notifications and Request**

For more information on Grantee Notifications to and Requests for approval from the National Science Foundation, please visit the Notifications and Requests section in FastLane or refer to Exhibit VII-1 of the Proposal & Award Policies & Procedures Guide (PAPPG).

Top of Form

* **\* Changes in approach and reasons for change** more information about changes in approach and reasons for change

**Nothing to report**

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* **\* Actual or Anticipated problems or delays and actions or plans to resolve them** more information about actual or anticipated problems or delays and actions or plans to resolve them

**Nothing to report**

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Characters Remaining: **8000**

* **\* Changes that have significant impact on expenditures** more information about changes that have significant impact on expenditures

**Nothing to report**

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Characters Remaining: **8000**

* **\* Significant changes in use or care of human subjects** more information about significant changes in use or care of human subjects

**Nothing to report**

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Characters Remaining: **8000**

* **\* Significant changes in use or care of vertebrate animals** more information about significant changes in use or care of vertebrate animals

**Nothing to report**

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Characters Remaining: **8000**

* **\* Significant changes in use or care of biohazards** more information about significant changes in use or care of biohazards

**Nothing to report**

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