



Advanced User's Guide Version 3.5

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Forward

This document, designed for experienced users, includes advanced knowledge, features, and skills of GSI as well as details of assimilation of specific data types. Users may use as a reference for their special research topics. To read this guide, users should already read and understand the content in the GSI User's Guide.

This version of Advanced GSI User's Guide was first released with the community GSI version 3.3 in 2014. Please note, not like the basic GSI user's guide which is being updated every year and closely follows the GSI release code, this advanced user's guide, as a reference, is only being updated as needed and therefore does not pertain to one specific code release.

This Advanced User's Guide consists of ten chapters:

- Chapter 1** Overview
- Chapter 2** Software Installation
- Chapter 3** Advanced Topics on Run and Diagnosis
- Chapter 4** GSI Theory
- Chapter 5** GSI Code Structure
- Chapter 6** Static Background Error Covariance
- Chapter 7** Observations
- Chapter 8** Satellite Radiance Data Assimilation
- Chapter 9** Radar Data Assimilation
- Chapter 10** GSI Applications

DTC will update the content of this advanced User's Guide if needed after the release. For the latest version of this document, please visit the GSI User's Website at

<http://www.dtcenter.org/com-GSI/users/index.php>

Please send questions and comments to:

gsi-help@ucar.edu

For referencing this document, please use: Developmental Testbed Center, 2016:
Gridpoint Statistical Interpolation Advanced User's Guide Version
3.5.0.0. Available at
<http://www.dtcenter.org/com-GSI/users/docs/index.php>, 119 pp.

For referencing the general aspect of the GSI community effort, please use: Shao, H., J. Derber, X.-Y. Huang, M. Hu, K. Newman, D. Stark, M. Lueken, C. Zhou, L.

Nance, Y.-H. Kuo, B. Brown, 2016: Bridging Research to Operations Transitions: Status and Plans of Community GSI. Bulletin of the American Meteorological Society, doi:10.1175/BAMS-D-13-00245.1, in press

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Overview

1.1 Purpose of the Advanced GSI User's Guide

1.2 Structure of this User's Guide