



# Global Soil Wetness Project Phase 3 Atmospheric Boundary Conditions (Experiment 1)

## 1. IDENTIFICATION INFORMATION

Name	Global Soil Wetness Project Phase 3 Atmospheric Boundary Conditions (Experiment 1)
Edition	Version 1
Abbreviation	GSWP3, EI-ABC
DOI	doi:10.20783/DIAS.501 [ <a href="https://doi.org/10.20783/DIAS.501">https://doi.org/10.20783/DIAS.501</a> ]
Metadata Identifier	GSWP3_EXP1_Forcing20230727092724-DIAS20221121113753-en

## 2. CONTACT

### 2.1 CONTACT on DATASET

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### 2.2 CONTACT on PROJECT

#### 2.2.1 Data Integration and Analysis System

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## 5. DATE OF THIS DOCUMENT

2023-07-27

## 6. DATE OF DATASET

creation : 2017-06-01

## 7. DATASET OVERVIEW

### 7.1 Abstract

retrospective atmospheric boundary conditions (9 variables: Rainfall, Snowfall, 2m Air Temperature, 2m Specific Humidity, Surface Pressure, Downward Shortwave Radiation, Downward Longwave Radiation, 10m Wind Speed, and Cloud Cover Fraction) for 1901-2010 in 3-hourly resolution are generated. 20th Century Reanalysis (20CR) [compo2011] [Compo et al., 2011] on global 2° resolution is dynamically downscaled into T248 (~0.5°) grid using a spectral nudging technique [Yoshimura and Kanamitsu 2008] in a Global Spectral Model (GSM) [Figure 2]. This successfully keeps the low frequency signal of original reanalysis, providing additional high frequency signals, which are lacking in previous products [e.g., Weedon et al., 2011]. It is essential to investigate phenomena at higher spatiotemporal scales such as extreme events. In order to relieve known artifacts (e.g., ripple patterns and persistent overcast in high latitude region), additional techniques, such as single ensemble correction [Yoshimura and Kanamitsu, 2013] and vertically weighted damping [Hong and Chang, 2012], are applied. Model biases in the downscaled 20CR are corrected using observational data (e.g., GPCP for precipitation, SRB for short/long wave radiation, and CRU for air temperature and daily temperature range). In addition to previously introduced bias correction algorithms [e.g., Weedon et al., 2011], variability in higher temporal (&lt;month) resolution is carefully corrected [Kim et al., in preparation]. Also, wind-induced precipitation undercatch correction is applied considering different types of gauges and their global distribution [Hirabayashi et al., 2008]. Through the above mentioned data generation strategy, GSWP3 has further reliability and consistency over the century long target timespan with higher spatiotemporal resolutions.

### 7.2 Topic Category(ISO19139)

climatologyMeteorologyAtmosphere

### 7.3 Temporal Extent

Begin Date	1901-01-01
End Date	2010-12-31
Temporal Characteristics	3hourly

### 7.4 Geographic Bounding Box

North latitude bound	90
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West longitude bound	-180
Eastbound longitude	180
South latitude bound	-90

## 7.5 Grid

Dimension Name	Dimension Size (slice number of the dimension)	Resolution Unit
time	321416	180 (minute)
row	360	0.5 (deg)
column	720	0.5 (deg)

## 7.6 Geographic Description

## 7.7 Keywords

### 7.7.1 Keywords on Dataset

Keyword Type	Keyword	Keyword thesaurus Name
discipline	GSWP3, Forcing Data, Surface Climate, Surface Meteorology	others

### 7.7.2 Keywords on Project

#### 7.7.2.1 Data Integration and Analysis System

Keyword Type	Keyword	Keyword thesaurus Name
theme	DIAS &gt; Data Integration and Analysis System	No_Dictionary

## 7.8 Online Resource

Please contact data creator to obtain the authentication information : <http://www.dias.nii.ac.jp/gswp3/input.html>

## 7.9 Data Environmental Information

## 7.10 Distribution Information

name	version	specification
netCDF4	E1V1	

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## 8. DATA PROCESSING

## 9. DATA REMARKS

## 10. DATA POLICY

### 10.1 Data Policy by the Data Provider

Limited Access until Project Accomplishment (CC-BY 4.0 afterward; planned)

### 10.2 Data Policy by the Project

#### 10.2.1 Data Integration and Analysis System

If data provider does not have data policy, DIAS Terms of Service (<https://diasjp.net/en/terms/>) and DIAS Privacy Policy (<https://diasjp.net/en/privacy/>) apply.

If there is a conflict between DIAS Terms of Service and data provider's policy, the data provider's policy shall prevail.

## 11. LICENSE

## 12. DATA SOURCE ACKNOWLEDGEMENT

### 12.1 Acknowledge the Data Provider

### 12.2 Acknowledge the Project

#### 12.2.1 Data Integration and Analysis System

If you plan to use this dataset for a conference presentation, paper, journal article, or report etc., please include acknowledgments referred to following examples. If the data provider describes examples of acknowledgments, include them as well.

" In this study, [Name of Dataset] provided by [Name of Data Provider] was utilized. This dataset was also collected and provided under the Data Integration and Analysis System (DIAS), which was developed and operated by a project supported by the Ministry of Education, Culture, Sports, Science and Technology. "

## 13. REFERENCES