This is an annotated example of an approved metadata file for public release on Water Node. Because OGW policy requires a standard format for the structure and metadata of the model archives many of the metadata fields are the same for each model archive. This annotated example highlights what fields are unique and non-unique to each model as well as providing instructions for how and what should be included in each field.

Metadata entries are color coded for easy use. Yellow text entries show text that is unique to each model and must be changed. Gray text entries are common to all groundwater models and should remain unchanged.

USGS science for a changing world

Water Resources NSDI Node

SEAWAT model used to evaluate the potential effects of alterations to the hydrologic system on the distribution of salinity in the Biscayne aquifer in Broward County, Florida: U.S. Geological Survey Data Release

Metadata:

WRD Maps and GIS Data
Get This Data Set
List of All GIS Data Sets

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information - **(Get This Data Set Here !)**
- Metadata_Reference_Information

Identification_Information:
    Citation:
    Citation_Information:
    Originator: Joseph D. Hughes
    Originator: Dorothy F. Sifuentes
    Originator: Jeremy T. White
    Publication_Date: 2016
    Title:
    SEAWAT model used to evaluate the potential effects of alterations to the hydrologic system on the distribution of salinity in the Biscayne aquifer in Broward County, Florida
    Edition: Version 1.1 - The structure of the archive and associated download files were modified to exactly match the proposed U.S. Geological Survey Office of Groundwater groundwater model archive structure 03/22/2016; Version 1.0 - Original Release 03/02/2016
    Geospatial_Data_Presentation_Form: groundwater model
    Publication_Information:
    Publication_Place: Reston, VA, USA
    Publisher: U.S. Geological Survey
    Online_Linkage: http://dx.doi.org/10.5066/F7PV6HFR
    Larger_Work_Citation:
    Citation_Information:
    Originator: Joseph D. Hughes
    Originator: Dorothy F. Sifuentes
    Originator: Jeremy T. White
    Publication_Date: 2016
    Title:
    Simulated Effects of Alterations to the Hydrologic System on the Distribution of Salinity in the Biscayne Aquifer in Broward County, Florida
    Geospatial_Data_Presentation_Form: Publication
    Series_Information:
    Series_Name: Scientific Investigations Report
    Issue_Identification: 2016-5022
    Publication_Information:
    Publication_Place: Reston, VA, USA
    Publisher: U.S. Geological Survey
    Online_Linkage: http://dx.doi.org/10.3133/sir20165022
    Description:
    Abstract:
    A three-dimensional, variable-density solute-transport model (SEAWAT) was developed to examine causes of saltwater intrusion and predict the effects of future alterations to the hydrologic system on

---

Comment [WMK1]: <origin>
The author(s) of the MODEL.
These may or may not be the same as the authors of the report.

Comment [WMK2]: <pubdate>
The publication date of the MODEL archive data release

Comment [WMK3]: <title>
The title of the MODEL archive data release.
It is a slight variation of the report title and should start with the model code used. For example, "MODFLOW model used to simulate…"

Comment [WMK4]: <edition>
The version of the MODEL archive data release
This is not needed for most models. It is only needed if changes are made to the model archive once it is posted to Water Node. For the first version of the model archive it can be deleted or changes to Version 1.0 with no additional text.

Comment [WMK5]: <onlink>
This is the DOI (Digital Object Identifier) for the MODEL archive data release
The path is the same and only the DOI changes.

Comment [WMK6]: <origin>
The authors of the REPORT.
These may or may not be the same as the authors of the model.

Comment [WMK7]: <pubdate>
The publication date of the REPORT

Comment [WMK8]: <title>
The title of the REPORT.

Comment [WMK9]: <sername> and <issue>
This is the REPORT series and the report number

Comment [WMK10]: <onlink>
This is the DOI for the REPORT.
The path is the same and only the DOI changes.

Comment [WMK11]:
This is the abstract for the MODEL archive data release. This should be different from the abstract of the REPORT. This should explain the who, what, when, where and how of the MODEL. This also will be used in the form to create the DOI for the model archive data release.

salinity distribution in eastern Broward County, Florida. The model was calibrated to conditions from 1970 to 2012, the period for which data are most complete and reliable, and was used to simulate historical conditions from 1950 to 2012. The model was used to (1) evaluate the sensitivity of the salinity distribution in groundwater to sea-level rise and groundwater pumping , and (2) simulate the potential effects of increases in pumping, variable rates of sea-level rise, movement of a salinity control structure, and use of drainage recharge wells on the future distribution of salinity in the aquifer. This USGS data release contains all of the input and output files for the simulations described in the associated model documentation report (http://dx.doi.org/10.3133/sir20165022). This data release also includes (1) preprocessing python scripts and associated input data files for creating the sensitivity and scenarios runs, (2) flopy source code, and (3) SEAWAT (v4) source code.

Purpose:

This groundwater model was created to examine causes of saltwater intrusion and predict the effects of future alterations to the hydrologic system on salinity distribution in eastern Broward County, Florida. The development of the model input and output files included in this data release are documented in U.S. Geological Survey Scientific Investigations Report 2016-5022 (http://dx.doi.org/10.3133/sir20165022).

Supplemental_Information:

Support is provided for correcting errors in the data release and clarification of the modeling conducted by the U.S. Geological Survey. Users are encouraged to review the model documentation report (http://dx.doi.org/10.3133/sir20165022) to understand the purpose, construction, and limitations of this model. The models, along with pre- and post-processing tools, will run successfully only if the original directory structure is correctly restored. The model archive is broken into several pieces to reduce the likelihood of download timeouts. Instructions for reconstructing the original directory structure and running the models included in this data release and described in the model documentation report can be found in the readme.txt ASCII file which can be downloaded as part of this data release. The structure of the archive and associated download files were modified on 3/21/2016 to exactly match the proposed U.S. Geological Survey Office of Groundwater groundwater model archive structure. Model results in the revised structure are identical to the previous version (version 1.0) of this data series.

Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:

Beginning_Date: 19500101
Ending_Date: 20110531
Currentness_Reference:
publication date
Status:
Progress: Complete
Maintenance_and_Update_Frequency: Not planned
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -80.78
East_Bounding_Coordinate: -80.018
North_Bounding_Coordinate: 26.487
South_Bounding_Coordinate: 25.919
Keywords:
Theme:
Theme_Keyword_Thesaurus: USGS Thesaurus
Theme_Keyword: usgsgroundwatermodel
Theme_Keyword: SEAWAT
Theme_Keyword: Groundwater
Theme_Keyword: InlandWaters
Theme_Keyword: Groundwater Model
Theme_Keyword: Transport Model
Theme_Keyword: Saltwater Intrusion
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: geoscientificInformation
Theme_Keyword: inlandWaters
Theme_Keyword: environment
Place:
Place_Keyword_Thesaurus: Geographic Names Information System
Place_Keyword: Florida
Place_Keyword: Biscayne aquifer
Place_Keyword: Fort Lauderdale
Place_Keyword: Broward County
Access_Constraints: None. Acknowledgement of the U.S. Geological Survey would be appreciated in products derived from this data release.
Use_Constraints:
none
Point_of_Contact: (Warning: Although accurate at the time of production, this information may have become obsolete. See the *Metadata_Reference_Information* section for a current contact.)
Contact_Information:
Contact_Person_Primary:

Contact_Person: Joseph D. Hughes
Contact_Organization: U.S. Geological Survey
Contact_Address:
Address_Type: mailing and physical
Address:
12201 Sunrise Valley Drive
City: Reston
State_or_Province: VA
Postal_Code: 20192
Country: USA
Contact_Voice_Telephone: 703-648-5805
Contact_Electronic_Mail_Address: jdhughes@usgs.gov
Browse_Graphic:
Browse_Graphic_File_Name: http://water.usgs.gov/GIS/browse/SIR2016-5022Thumbnail.jpg
Browse_Graphic_File_Description:
Image of the model domain and active area of the model.
Browse_Graphic_File_Type: jpg
Data_Set_Credit:
Broward County Environmental Planning and Community Resilience Division

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Data_Quality_Information:
  Attribute_Accuracy:
  Attribute_Accuracy_Report:
The model was calibrated using data from 1970 to 2012, the period for which data are most complete and reliable, and was used to simulate historical conditions from 1950 to 2012. The calibration process was constrained by water-level data from 15 groundwater monitoring wells and water-quality data from 11 groundwater monitoring wells, and chloride concentrations at 9 well fields.
  Logical_Consistency_Report:
No formal logical accuracy tests were conducted
  Completeness_Report:
Data set is considered complete for the information presented, as described in the abstract. Users are advised to read the rest of the metadata record and the associated model documentation report (http://dx.doi.org/10.3133/sir20165022) for additional details.
  Positional_Accuracy:
  Horizontal_Positional_Accuracy:
  Horizontal_Positional_Accuracy_Report:
No formal positional accuracy tests were conducted
  Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report:
No formal positional accuracy tests were conducted
Lineage:
Process_Step:
Process_Description:
The process used to develop, calibrate, and apply the saltwater intrusion model is fully described in the model documentation report (http://dx.doi.org/10.3133/sir20165022).
Process_Date: 2016

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Spatial_Data_Organization_Information:
 Direct_Spatial_Reference_Method: raster
 Raster_Object_Information:
 Raster_Object_Type: pixel

Spatial_Reference_Information:
 Horizontal_Coordinate_System_Definition:
 Planar:
 Map_Projection:
 Map_Projection_Name: Transverse Mercator
 Transverse_Mercator: Transverse Mercator
 Scale_Factor_at_Central_Meridian: 0.99994118
 Longitude_of_Central_Meridian: -81.0
 Latitude_of_Projection_Origin: 24.33333333
 False_Easting: 656166.66666667
 False_Northing: 0.0
 Planar_Coordinate_Information:
 Planar_Coordinate_Encoding_Method: row and column
 Coordinate_Representation:
 Abscissa_Resolution: 500.0
 Ordinate_Resolution: 500.0
 Planar_Distance_Units: feet
 Vertical_Coordinate_System_Definition:
 Altitude_System_Definition:
 Altitude_Datum_Name: North American Vertical Datum of 1988
 Altitude_Resolution: 1.0
 Altitude_Distance_Units: feet
 Altitude_Encoding_Method: Attribute values

Entity_and_Attribute_Information:
 Detailed_Description:

Comment [WMK26]: <procdesc> Description of the model or delete

Comment [WMK27]: <procdesc> The report DOI

Comment [WMK28]: <procdate> the year you are completing this metadata

Comment [WMK29]: <mapprojn> This is the map projection. You can find this information in the ARCGIS description under Spatial Reference

Comment [WMK30]: <absres> The minimum grid size of the row.

Comment [WMK31]: <orders> The minimum grid size of the column.

Comment [WMK32]: <plandu> The units of length in the model.

Comment [WMK33]: <altdatum> The vertical datum used for the study.

Entity_Type:
Entity_Type_Label: SIR2016_5022.shp
Entity_Type_Definition:
ESRI Polygon shapefile
Entity_Type_Definition_Source:
U.S. Geological Survey
Attribute:
Attribute_Label: Area
Attribute_Definition:
Text string indicating is polygon area is active or inactive in the model.
Attribute_Definition_Source:
http://dx.doi.org/10.3133/sir20165022
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: usgsgroundwatermodel
Enumerated_Domain_Value_Definition:
Delineation of active and inactive areas in the model.
Enumerated_Domain_Value_Definition_Source:
http://dx.doi.org/10.3133/sir20165022
Overview_Description:
Entity_and_Attribute_Overview:
Hughes, J.D., Sifuentes, D.F., and White, J.T., 2016, SEAWAT model used to evaluate the potential effects of alterations to the hydrologic system on the distribution of salinity in the Biscayne aquifer in Broward County, Florida: U.S. Geological Survey data release
Entity_and_Attribute_Detail_Citation:
http://dx.doi.org/10.5066/F7PV6HFR

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Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Ask USGS -- Water Webserver Team
Contact_Organization: U.S. Geological Survey
Contact_Address:
Address_Type: mailing and physical
Address:
445 National Center
City: Reston
State_or_Province: Virginia
Postal_Code: 20192
Country: USA
Contact_Voice_Telephone: 1-888-275-8747 (1-888-ASK-USGS)

Contact_Electronic_Mail_Address:
http://water.usgs.gov/user_feedback_form.html
Distribution_Liability:
The data have been approved for release by the U.S. Geological Survey (USGS). Although the data have been subjected to rigorous review and are substantially complete, the USGS reserves the right to revise the data pursuant to further analysis and review. Furthermore, the data are released on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from authorized or unauthorized use. Although the data, software, and related material have been processed successfully on a computer system at the USGS, no warranty expressed or implied is made regarding the display or utility of the data on any other system, or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. The USGS or the U.S. Government shall not be held liable for improper or incorrect use of the data described and/or contained herein. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: readme.txt
Format_Version_Number: 1.1 data updated 03/22/2016
Format_Specification:
ASCII text file
Format_Information_Content:
This ASCII text file describes the model data release. This file also includes instructions on how to run the models contained in this data release.
Transfer_Size: .140956
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/readme.txt
Digital_Form:
Digital_Transfer_Information:
Format_Name: modelgeoref.txt
Format_Version_Number: 1.0
Format_Specification:
ASCII text file
Format_Information_Content:

This ASCII text file defines the four corners of the model domain.
Transfer_Size: 0.000703
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/modelgeoref.txt
Digital_Form:
Digital_Transfer_Information:
Format_Name: ancillary.zip
Format_Version_Number: 1.1 data updated 03/22/2016
Format_Specification:
ZIP
Format_Information_Content:
This ZIP file contains ancillary data including directories with python scripts for generating sensitivity (brow.cs.sensi.build) and scenario (brow.cs.scenarios.build) model input files. The directory also includes GIS data used to generate figures and sensitivity and scenario datasets.
Transfer_Size: 42.192784
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/ancillary.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: bin.zip
Format_Version_Number: 1.0
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing the 64-bit executable used to run the history matching simulation, the 3 sensitivity simulations, and the 7 scenario simulations documented in the report.
Transfer_Size: 2.279475
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/bin.zip

Digital_Form:
Digital_Transfer_Information:
Format_Name: georef.zip
Format_Version_Number: 1.0
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing a shapefile which defines the extent of the model domain and active portions of the model.
Transfer_Size: 0.012960
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/georef.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: calibration.zip
Format_Version_Number: 0.0015
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the history-matching simulation. Additional files for the history-matching simulation are in the external_files.zip download and must be downloaded to run the model simulation.
Transfer_Size: 0.001507
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/calibration.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: external_files.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the external input files for the history-matching simulation, sensitivity simulations, and scenario simulations.
Transfer_Size: 2145.386890

Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/external_files.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: model.misc.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains python scripts for running the history-matching simulation, sensitivity simulations, and scenario simulations.
Transfer_Size: 0.004651
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/model.misc.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: scen01.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the scenario 1 simulation. Additional files for the scenario 1 simulation are in the external_files.zip download and must be downloaded to run the model simulation.
Transfer_Size: 0.001547
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/scen01.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: scen02.zip
Format_Version_Number: 1.1 - data updated 03/22/2016

Comment [WMK46]: If you need to add or delete entries for your model, add or delete groups of info from the tags

Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the scenario 2 simulation.
Additional files for the scenario 2 simulation are in the
external_files.zip download and must be downloaded to run the model
simulation.
Transfer_Size: 0.001553
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/scen02.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: scen03.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the scenario 3 simulation.
Additional files for the scenario 3 simulation are in the
external_files.zip download and must be downloaded to run the model
simulation.
Transfer_Size: 0.001549
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/scen03.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: scen04.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the scenario 4 simulation.
Additional files for the scenario 4 simulation are in the
external_files.zip download and must be downloaded to run the model
simulation.
Transfer_Size: 0.001551

Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/scen04.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: scen05.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the scenario 5 simulation. Additional files for the scenario 5 simulation are in the external_files.zip download and must be downloaded to run the model simulation.
Transfer_Size: 0.00150
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/scen05.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: scen06.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the scenario 6 simulation. Additional files for the scenario 6 simulation are in the external_files.zip download and must be downloaded to run the model simulation.
Transfer_Size: 0.001561
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/scen06.zip
Digital_Form:
Digital_Transfer_Information:

Format_Name: scen07.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the scenario 7 simulation.
Additional files for the scenario 7 simulation are in the
external_files.zip download and must be downloaded to run the model
simulation.
Transfer_Size: 0.001563
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/scen07.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: sensi.nochange.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the no change sensitivity
simulation. Additional files for the no change sensitivity simulation are
in the external_files.zip download and must be downloaded to run the
model simulation.
Transfer_Size: 0.001564
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/sensi.nochange.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: sensi.nowell.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the no well sensitivity
simulation. Additional files for the no well sensitivity simulation are in

the external_files.zip download and must be downloaded to run the model simulation.
Transfer_Size: 0.001529
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/sensi.nowell.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: sensi.nowell.nochange.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
This ZIP file contains the input files for the no well and no change sensitivity simulation. Additional files for the no well and no change sensitivity simulation are in the external_files.zip download and must be downloaded to run the model simulation.
Transfer_Size: 0.001602
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/model/sensi.nowell.nochange.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.calibration.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the history matching simulation.
Transfer_Size: 2289.407350
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.calibration.zip
Digital_Form:
Digital_Transfer_Information:

Format_Name: output.misc.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing post-processing scripts, observed data used by
post-processing scripts, and output from post-processing scripts.
Transfer_Size: 75.219590
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.misc.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.scen01.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the scenario 1 simulation.
Transfer_Size: 1858.298641
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.scen01.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.scen02.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the scenario 2 simulation.
Transfer_Size: 1861.021880
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.scen02.zip

Digital_Form:
Digital_Transfer_Information:
Format_Name: output.scen03.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the scenario 3 simulation.
Transfer_Size: 1864.001478
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.scen03.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.scen04.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the scenario 4 simulation.
Transfer_Size: 1866.149239
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.scen04.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.scen05.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the scenario 5 simulation.
Transfer_Size: 1868.841948
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:

Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.scen05.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.scen06.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the scenario 6 simulation.
Transfer_Size: 1879.458394
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.scen06.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.scen07.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the scenario 7 simulation.
Transfer_Size: 1868.974186
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.scen07.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.sensi.nochange.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the no change sensitivity simulation.
Transfer_Size: 2288.649457
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:

Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.sensi.nochange.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.sensi.nowell.nochange.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the no change and no well sensitivity simulation.
Transfer_Size: 2290.940974
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.sensi.nowell.nochange.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: output.sensi.nowell.zip
Format_Version_Number: 1.1 - data updated 03/22/2016
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing results from the no well sensitivity simulation.
Transfer_Size: 2284.540075
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/output/output.sensi.nowell.zip
Digital_Form:
Digital_Transfer_Information:
Format_Name: source.zip
Format_Version_Number: 1.0
Format_Specification:
ZIP file
Format_Information_Content:
ZIP file containing Source files for non-standard code versions used to run model simulations included in the data release. SEAWAT version 4 source code for MT3DMS was modified to create observation output

that is easier to post-process with python. The standard version of SEAWAT version 4 can also be used but observation output would have a different format that would not be able to be post processed with the python scripts included in this data release. The flopy python package (version 3.0.3) has also been included. flopy post-processing methods are used in the python post-processing scripts to read binary MODFLOW and MT3DMS output files. This version of flopy was developed for python 2.7 and may not run in more recent versions of python. flopy version 3.0.3 requires NumPy 1.9 (or higher) and matplotlib 1.4 (or higher). The mapping and cross-section capabilities in the flopy version 3.0.3 require Pyshp 1.2 (or higher). The cluster_repo python package has also been included because several of the python pre- and post-processing scripts use the functionality in classes and methods. In particular, the classes and methods in shapefile.py and pestUtil.py are used. cluster_repo requires NumPy 1.9 or higher and pandas 0.15.2 or higher. The post-processing scripts also require the basemap 1.0.7 or higher.

Transfer_Size: 1.1
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://water.usgs.gov/GIS/dsdl/gwmodels/SIR2016-5022/source.zip
Fees: None

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Metadata_Reference_Information:
  Metadata_Date: 20160322
  Metadata_Contact:
  Contact_Information:
  Contact_Organization_Primary:
  Contact_Organization: U.S. Geological Survey
  Contact_Position: Ask USGS -- Water Webserver Team
  Contact_Address:
  Address_Type: mailing
  Address:
  445 National Center
  City: Reston
  State_or_Province: VA
  Postal_Code: 20192
  Contact_Voice_Telephone: 1-888-275-8747 (1-888-ASK-USGS)
  Contact_Electronic_Mail_Address: http://answers.usgs.gov/cgi-bin/gsanswers?pemail=h2oteam&subject=GIS+Dataset+sir2016_5022_usgsdatarelease

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

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