

Microgravity Methods for Characterization of Groundwater-Storage Changes and Aquifer Properties in the Karstic Madison Aquifer in the Black Hills of South Dakota, 2009-12: Usgs Scientific Investigations Report 2012-5158



Microgravity methods for characterization of groundwater-storage changes and aquifer properties in the karstic Madison aquifer in the Black Hills of South Dakota, 2009-12: USGS Scientific Investigations Report 2012-5158

Karl R. Koth, Andrew J. Long

Filesize: 2.07 MB

Reviews

It is an awesome book that we have possibly go through. It is actually written in straightforward words and phrases and not confusing. It is extremely difficult to leave it before concluding, once you begin to read the book.

(Tierra Kunde)

MICROGRAVITY METHODS FOR CHARACTERIZATION OF GROUNDWATER-STORAGE CHANGES AND AQUIFER PROPERTIES IN THE KARSTIC MADISON AQUIFER IN THE BLACK HILLS OF SOUTH DAKOTA, 2009-12: USGS SCIENTIFIC INVESTIGATIONS REPORT 2012-5158

[DOWNLOAD PDF](#)

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 36 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. A study of groundwater storage in the karstic Madison aquifer in the Black Hills of South Dakota using microgravity methods was conducted by the U. S. Geological Survey in cooperation with West Dakota Water Development District, South Dakota Department of Environment and Natural Resources, and Lawrence County. Microgravity measurements from 2009 to 2012 were used to investigate groundwater-storage changes and effective porosity in unconfined areas of the Madison aquifer. Time-lapse microgravity surveys that use portable high-sensitivity absolute and relative gravimeters indicated temporal-gravity changes as a result of changing groundwater mass. These extremely precise measurements of gravity required characterization and removal of internal instrumental and external environmental effects on gravity from the raw data. The corrected data allowed groundwater-storage volume to be quantified with an accuracy of about plus or minus 0. 5 foot of water per unit area of aquifer. Quantification of groundwater-storage change, coupled with water-level data from observation wells located near the focus areas, also was used to calculate the effective porosity at specific altitudes directly beneath gravity stations. Gravity stations were established on bedrock outcrops in three separate focus areas for this study. The first area, the Spring Canyon focus area, is located to the south of Rapid City with one gravity station on the rim of Spring Canyon near the area where Spring Creek sinks into the Madison aquifer. The second area, the Doty focus area, is located on outcrops of the Madison Limestone and Minnelusa Formation to the northwest of Rapid City, and consists of nine gravity stations. The third area, the Limestone Plateau focus area, consists of a single gravity station in the northwestern Black Hills located on an outcrop of the Madison Limestone. An...



[Read Microgravity Methods for Characterization of Groundwater-Storage Changes and Aquifer Properties in the Karstic Madison Aquifer in the Black Hills of South Dakota, 2009-12: Usgs Scientific Investigations Report 2012-5158 Online](#)



[Download PDF Microgravity Methods for Characterization of Groundwater-Storage Changes and Aquifer Properties in the Karstic Madison Aquifer in the Black Hills of South Dakota, 2009-12: Usgs Scientific Investigations Report 2012-5158](#)

Other Kindle Books



Animalogy: Animal Analogies

Sylvan Dell Publishing. Paperback. Book Condition: New. Cathy Morrison (illustrator). Paperback. 32 pages. Dimensions: 9.8in. x 8.4in. x 0.4in. Compare and contrast different animals through predictable, rhyming analogies. Find the similarities between even the most incompatible...

[Read ePub »](#)



Good Night, Zombie Scary Tales

Feiwel & Friends. Paperback. Book Condition: New. Iacopo Bruno (illustrator). Paperback. 112 pages. Dimensions: 8.2in. x 5.4in. x 0.2in. Welcome. Have a seat. Ignore the shambling undead outside. Let us tell you a story. But be...

[Read ePub »](#)



God Loves You. Chester Blue

Henry and George Press. Paperback. Book Condition: New. Ursula Andrejczuk (illustrator). Paperback. 140 pages. Dimensions: 8.0in. x 5.2in. x 0.3in. BEAUTIFUL NEW ILLUSTRATIONS BRING THE STORY TO LIFE! A charming book about a mysterious bear that shows...

[Read ePub »](#)



The Whale Tells His Side of the Story Hey God, I've Got Some Guy Named Jonah in My Stomach and I Think I'm Gonna Throw Up

B&H Kids. Hardcover. Book Condition: New. Cory Jones (illustrator). Hardcover. 32 pages. Dimensions: 9.1in. x 7.2in. x 0.3in. Oh sure, well all heard the story of Jonah and the Whale a hundred times. But have we...

[Read ePub »](#)



When Santa Claus Prayed

Xulon Press. Paperback. Book Condition: New. Paperback. 28 pages. Dimensions: 9.0in. x 8.1in. x 0.3in. Dad, you're wrong about Santa Claus! I can't sit on baby Jesus' lap or even see him! I can't send letters...

[Read ePub »](#)



Kindle Fire Tips And Tricks How To Unlock The True Power Inside Your Kindle Fire

CreateSpace Independent Publishing Platform. Paperback. Book Condition: New. This item is printed on demand. Paperback. 52 pages. Dimensions: 9.0in. x 6.0in. x 0.1in. Still finding it getting your way around your Kindle Fire Wish you had

[Download Book »](#)



TJ new concept of the Preschool Quality Education Engineering: new happy learning young children (3-5 years old) daily learning book Intermediate (2) (Chinese Edition)

paperback. Book Condition: New. Ship out in 2 business day, And Fast shipping, Free Tracking number will be provided after the shipment. Paperback. Pub Date :2005-09-01 Publisher: Chinese children before making Reading: All books are the

[Download Book »](#)



xk] 8 - scientific genius kids favorite game brand new genuine(Chinese Edition)

paperback. Book Condition: New. Ship out in 2 business day, And Fast shipping, Free Tracking number will be provided after the shipment. Paperback. Pub Date :2010-01-01 Pages: 270 Publisher: Dolphin Publishing Our Books all book of

[Download Book »](#)



The Stories Julian Tells A Stepping Stone BookTM

Random House Books for Young Readers. Paperback. Book Condition: New. Ann Strugnell (illustrator). Paperback. 80 pages. Dimensions: 7.6in. x 5.0in. x 0.4in. Julian is a quick fibber and a wishful thinker. And he is great at

[Download Book »](#)



By the Fire Volume 1

CreateSpace Independent Publishing Platform. Paperback. Book Condition: New. This item is printed on demand. Paperback. 130 pages. Dimensions: 9.0in. x 6.0in. x 0.3in. By the Fire is an exciting new Bi-Monthly publication featuring new works by

[Download Book »](#)