**Habes A Ghrefat**

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| Associate Professor  Department of Geology and Geophysics  King Saud University  Riyadh, Saudi Arabia | Work phone: (+966) 11-4676192  Cell phone: (+966) 536406387 |
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1. **Education**

**2004**Ph.D. inEnvironmental Science and Engineering, University of Texas at El Paso, USA.

**Dissertation Title**:Hyperspectral and Multispectral Studies of Evaporite Minerals at White Sands, N.M.

**Areas of focus**:Remote sensing using airborne and spaceborne sensors; evaporite minerals as mineral resources,  modeling grain size variations of gypsum and sedimentary processes, hydrology, landcover, and sediment input, and spectral measurements.

**1999**M.Sc in Geology, Yarmouk University, Jordan.

**Thesis Title**:Hydrochemical and geochemical study of Wadi Al-Arab Wells and Dam: With special regards to the environmental pollution

**Areas of focus**: Heavy metal pollution in surface water, groundwater, and sediments; and water chemistry.

**1994**B.Sc in Earth and Environmental Sciences, Yarmouk University, Jordan.

**B. Employments and Work Experience**

**1. Teaching**

-Aug.1996-Oct.1999      Teaching the following labs for undergraduate students in the Department of Earth and Environmental Sciences, Yarmouk University, Jordan:

**1.** **Geology 255- Arid and semi-arid lands management**

**2.** **Geology 332- Sedimentary**

**3.** **Geology 451- Hydrogeology**

**4.** **Geology 474- Geochemistry**

  ·  -Jan.2000-Dec.2003        Teaching the following labs for undergraduate and graduate students in the Department of Geological Sciences, University of Texas at El Paso, USA:

**1. Geology 1304- Earth Sciences 2**

**2. Geophysics 4336- Introduction to Remote Sensing**

**3. Geophysics 5336- Digital Image Processing**

· -Jan.2006- Dec.2006    Teaching the following courses for undergraduate and graduate students  in the Department of Earth Science, Sultan Qabous University, Oman:

**1. ERSC6801- GIS and Remote Sensing**

**2. ERSC4021- Remote Sensing and Photogeology**

**3. ERSC2101- Introduction to Geology-I**

**5. ERSC3000-Environmental Geology**

****-**November, 2007- Until now**teaching the following courses for undergraduate students in the Department of Geology and Geophysics, King Saud University, Saudi Arabia:

1. **Geology 101- Physical Geology**
2. **Geology 282- Photogeology**
3. **Geology 385- Geologic Reports**
4. **Geology 492- Geologic Seminar**
5. **Geology 499- Research Project**
6. **Geology 512- Statistical Geology**
7. **Geo 383- Remote Sensing**
8. **Geo 262- Environmental Geology**
9. **Geo 478- Spatial Information System (GIS)**
10. **Geo 406- Data Analysis in Geology**

**2. Research**

- Jan.1999-Dec. 2000        Department of Earth and Environmental Sciences, Yarmouk University, Jordan.

·-Jan. 2004-May 2004     Pan American Center for Earth and Environmental Studies (PACES), Department of Geological Sciences, University of Texas at El Paso, USA.

**Research Interests**

* Environmental resources management and quality assessment.
  + Water management: water quality evaluation, monitoring, vulnerability studies.
  + Soil management: contaminant transport and fate.
  + Air pollution assessment (monitoring, sources, airborne contaminants
* Environmental and marine geochemistry
* Application of remote sensing data in soil studies.

**C. Funded Projects**

1. Distribution of water recharge areas and deterioration of groundwater resources in the Midyan Basin, northwestern Saudi Arabia. Funded by the National Science Technology and Innovation Plan, Riyadh, Saudi Arabia. (PI)
2. Factors controlling the configuration of the water bodies in the eastern Gulf of Aqaba coastal aquifers, Saudi Arabia. Funded by the National Science Technology and Innovation Plan, Riyadh, Saudi Arabia.(PI)
3. Geological setting, mineral and chemical evaluation of bauxite ore deposits of Az Zabirah Area Central Northern of Saudi Arabia. Funded by the National Science Technology and Innovation Plan, Riyadh, Saudi Arabia.(CO-I)
4. Hydrogeological vulnerability and risk mapping of ground water resources of the Saq and overlying aquifers, Saudi Arabia, using GIS and DRASTIC techniques. Funded by the National Science Technology and Innovation Plan, Riyadh, Saudi Arabia. (CO-I)

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Publications

1. Abu-Rukah, Y., and **Ghrefat, H.A**.**,** 2000. A study of the heavy metals distribution and fractionation in sediments of the Yarmouk River-Jordan. Africa Geoscience Review, Vol.7, No.1, pp. 91-100.
2. Abu-Rukah, Y., and **Ghrefat, H.A**., 2001. Assessment of the anthropogenic influx of metallic pollutants in Yarmouk River-Jordan. Environmental Geology, Vol.6, No. 40, pp.683-692.
3. Abu-Rukah, Y., and **Ghrefat, H.A**., 2002. Determination and fractionation of heavy metals in sediments from Yarmouk River, Jordan by sequential extraction, ABHATH AL-YARMOUK: “Basic Science & Engineering”, Vol.11, No.2B, pp. 709-725.
4. Goodell, P.C., and **Ghrefat, H.A**., 2002.  White Sands, N.M., as part of an image processing laboratory, New Mexico Geological Society Guidebook, 53rd Field Conference, Geology of White Sands, 2002, pp. 353-355.
5. Abu-Rukah, Y., and **Ghrefat, H.A**., 2004. Ion chemistry of waters impounded by the Ziqlab dam, Jordan, and weathering processes, International Journal of Environment and Pollution, Vol.21, No.3, pp. 263-276.
6. Goodell, P.C., Lu, H., **Ghrefat, H.A**., and Howari, F.M., 2004. Energy savings for favorable industrial mineral facilities worldwide, Industrial Minerals Journal, Vol. 37, pp. 80-87.
7. **Ghrefat, H.A.**, and Najem, A. Y., 2006. Assessing Mn, Fe, Cu, Zn, and Cd pollution in bottom sediments of Wadi Al-Arab Dam, Jordan.   Chemosphere, Vol.65, Issue 11, pp.2114-2121.
8. **Ghrefat, H.A**., Goodell, P.C., Hubbard, B.E., Langford, R, and Alduri, R., 2007. Modeling grain size variations of Aeolian gypsum deposits at White Sands, New Mexico, using AVIRIS imagery. Geomorphology, Vol.88, pp.57-68.
9. Abu Rukah, Y., and **Ghrefat, H.A**., 2009.Multivariate statistical analysis and enrichment study of the sediments of Wadi Shueib Dam, Jordan. International Journal of Ecology and Development, Vol.14, pp. 63-73.

1. Abu Rukah, Y., Rosen, M.A., and **Ghrefat, H.A.,** 2010. Hydrogeological Data Evaluation and Solid Waste Management at Al-Akeeder Landfill Site, Jordan: Assessing Pollution Risks. International Journal of Ecology and Environmental Sciences, 36 (2-3), 1-12.
2. **Ghrefat, H.A**., Abu Rukah, Y., and Rosen, M.A., 2011. Application of geoaccumulation index and enrichment factor for assessing metal contamination in the sediments of Kafrain Dam, Jordan. Environmental Monitoring and Assessment, Vol. 178 (1-4), pp. 95-109.
3. [**Ghrefat, H.A.**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6508381574&zone=), [Goodell, P.C.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7003411098&zone=), 2011. [Land cover mapping at Alkali Flat and Lake Lucero, White Sands, New Mexico, USA using multi-temporal and multi-spectral remote sensing data](http://www.scopus.com/record/display.url?eid=2-s2.0-80053289623&origin=resultslist&sort=plf-f&src=s&st1=ghrefat+h&sid=lC4LIvO9Nf77jLXD9IpEh7L:60&sot=b&sdt=b&sl=22&s=AUTHOR-NAME(ghrefat+h)&relpos=0&relpos=0&searchTerm=AUTHOR-NAME(ghrefat%20h)). [International Journal of Applied Earth Observation and Geoinformation](http://www.scopus.com/source/sourceInfo.url?sourceId=39563&origin=resultslist) 13 (4), pp. 616-625.
4. [**Ghrefat, H.A**.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6508381574&zone=), [Jamarh, A.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=36716342700&zone=" \o "Show author details), [Al-Futaisi, A.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=15844923400&zone=), [Al-Abri, B.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=36716060400&zone=), 2011. [Water quality mapping and assessment, and weathering processes of selected aflaj in Oman](http://www.scopus.com/record/display.url?eid=2-s2.0-78650787702&origin=resultslist&sort=plf-f&src=s&st1=ghrefat+h&sid=lC4LIvO9Nf77jLXD9IpEh7L:60&sot=b&sdt=b&sl=22&s=AUTHOR-NAME(ghrefat+h)&relpos=3&relpos=3&searchTerm=AUTHOR-NAME(ghrefat%20h)). Environmental Monitoring and Assessment, Vol. 181 (1-4), pp. 509-524.
5. [**Ghrefat, H.A**.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6508381574&zone=), [Yusuf, N.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=15063745900&zone=), [Jamarh, A.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=36716342700&zone=" \o "Show author details), [Nazzal, J.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6603256563&zone=" \o "Show author details), 2012. [Fractionation and risk assessment of heavy metals in soil samples collected along Zerqa River, Jordan](http://www.scopus.com/record/display.url?eid=2-s2.0-79960684735&origin=resultslist&sort=plf-f&src=s&st1=ghrefat+h&sid=lC4LIvO9Nf77jLXD9IpEh7L:60&sot=b&sdt=b&sl=22&s=AUTHOR-NAME(ghrefat+h)&relpos=1&relpos=1&searchTerm=AUTHOR-NAME(ghrefat%20h)). [Environmental Earth Sciences](http://www.scopus.com/source/sourceInfo.url?sourceId=19400158519&origin=resultslist). [Environmental Earth Sciences](http://www.springerlink.com/content/1866-6280/), 66 (1), 199-208.
6. Ahmed A. Al-Taani, Awni Batayneh, Saad Mogren, Yousef Nazzal, **Habes Ghrefat**, Haider Zaman, Eslam Elawadi, 2013. Groundwater Quality of Coastal Aquifer Systems in the Eastern Coast of the Gulf of Aqaba, Saudi Arabia, Journal of Applied Science and Agriculture, 8(6), 768-778.
7. Awni Batayneh, Eslam Elawadi, Haider Zaman, Ahmed A. Al-Taani, Yousef Nazzal, and **Habes Ghrefat**, 2013. Environmental Assessment of the Gulf of Aqaba Coastal Surface Waters, Saudi Arabia. JOURNAL OF COASTAL RESEARCH,  Volume: 30,   Issue: 2,  Pages: 283-290.
8. Awni Batayneh, Haider Zama, TaisserZumlot, **Habes Ghrefat**, SaadMogren, Yousef Nazzal, EslamElawadi, Saleh Qaisy, Ibrahim Bahkaly, and Ahmed Al-Taani, 2013. Hydrochemical Facies and Ionic Ratios of the Coastal Groundwater Aquifer of Saudi Gulf of Aqaba: Implication for Seawater Intrusion. Journal of Coastal Research, 30 (1), 75–87.
9. Eslam Elawadi1, Haider Zaman, Awni Batayneh,Saad Mogren,Abdalaziz Laboun,**Habes Ghrefat**,Taisser Zumlot, 2013. Structural interpretation of the Ifal Basin in north-western Saudi Arabia from aeromagnetic data: hydrogeological and environmental implications. Exploration Geophysics, 44 (4), 251-263.
10. [**Ghrefat, H.A.**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6508381574&zone=), [Howari, F.M.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7003411098&zone=" \o "Show author details), 2013.  Rate of deposition and quality of sedimentation dust in Al Ain and Ras Al Khaimah, United Arab Emirates. Arabian Journal of Geosciences, 6 (4) , 1033-1039.
11. **Habes A. Ghrefat**, Awni Batayneh,Haider Zaman,Taisser Zumlot, Eslam Elawadi,Yousef Nazzal, 2013. Major ion chemistry and weathering processes in the Midyan Basin, northwestern Saudi Arabia. Environmental Monitoring and Assessment, 185 (10), 8695-8705.
12. Husain A. Alanazi,**Habes A. Ghrefat**, 2013. Spectral Analysis of Multispectral Landsat 7 ETM + and ASTER Data for Mapping Land Cover at Qurayah Sabkha, Northern Saudi Arabia. J Indian Soc Remote Sens (December 2013) 41(4):833–844.
13. Osama E. A. Attia, **Habes Ghrefat**, 2013. Assessing heavy metal pollution in the recent bottom sediments of Mabahiss Bay, North Hurghada, Red Sea, Egypt. Environ Monit Assess (2013) 185:9925–9934.
14. Taisser Zumlot, Awni Batayneh, Yousef Nazal,**Habes Ghrefat**,Saad Mogren,Haider Zaman,Eslam Elawadi,Abdalaziz Laboun, Saleh Qaisy, 2013. Using multivariate statistical analyses to evaluate groundwater contamination in the northwestern part of Saudi Arabia. Environmental Earth Sciences, 70 (7), 3277-3287.
15. [Ahmed A. Al-Taani](http://www.sciencedirect.com/science/article/pii/S0025326X14003610), [Awni Batayneh](http://www.sciencedirect.com/science/article/pii/S0025326X14003610), [Yousef Nazzal](http://www.sciencedirect.com/science/article/pii/S0025326X14003610), [**Habes Ghrefat**](http://www.sciencedirect.com/science/article/pii/S0025326X14003610), [Eslam Elawadi](http://www.sciencedirect.com/science/article/pii/S0025326X14003610), [Haider Zaman](http://www.sciencedirect.com/science/article/pii/S0025326X14003610), 2014. [Status of trace metals in surface seawater of the Gulf of Aqaba, Saudi Arabia.](http://apps.webofknowledge.com/full_record.do?product=UA&search_mode=GeneralSearch&qid=1&SID=T2stB4sJlHb2BnM9Tlo&page=1&doc=1) Marine pollution bulletin, Volume: 86   Issue: 1-2   Pages: 582-90.
16. [Batayneh, A](http://apps.webofknowledge.com/OneClickSearch.do?product=UA&search_mode=OneClickSearch&excludeEventConfig=ExcludeIfFromFullRecPage&SID=T2stB4sJlHb2BnM9Tlo&field=AU&value=Batayneh,%20A&cacheurlFromRightClick=no) ; [Elawadi, E](http://apps.webofknowledge.com/OneClickSearch.do?product=UA&search_mode=OneClickSearch&SID=T2stB4sJlHb2BnM9Tlo&field=AU&value=Elawadi,%20E&ut=16411373&pos=%7B2%7D&excludeEventConfig=ExcludeIfFromFullRecPage); [Zaman, H](http://apps.webofknowledge.com/OneClickSearch.do?product=UA&search_mode=OneClickSearch&excludeEventConfig=ExcludeIfFromFullRecPage&SID=T2stB4sJlHb2BnM9Tlo&field=AU&value=Zaman,%20H).; [Al-Taani, AA](http://apps.webofknowledge.com/OneClickSearch.do?product=UA&search_mode=OneClickSearch&excludeEventConfig=ExcludeIfFromFullRecPage&SID=T2stB4sJlHb2BnM9Tlo&field=AU&value=Al-Taani,%20AA); [Nazzal, Y](http://apps.webofknowledge.com/OneClickSearch.do?product=UA&search_mode=OneClickSearch&excludeEventConfig=ExcludeIfFromFullRecPage&SID=T2stB4sJlHb2BnM9Tlo&field=AU&value=Nazzal,%20Y); [**Ghrefat, H**](http://apps.webofknowledge.com/OneClickSearch.do?product=UA&search_mode=OneClickSearch&excludeEventConfig=ExcludeIfFromFullRecPage&SID=T2stB4sJlHb2BnM9Tlo&field=AU&value=Ghrefat,%20H)., 2014. A pragmatic approach to study the groundwater quality suitability for domestic and agricultural usage, Saq aquifer, northwest of Saudi Arabia. ENVIRONMENTAL MONITORING AND ASSESSMENT, Volume: 186, Issue: 8, Pages: 4655-4667.
17. **Habes Ghrefat**, Yousef Nazzal, Awni Batayneh,Taisser Zumlot,Haider Zaman,Eslam Elawadi,Abdulaziz Laboun,Saad Mogren, Saleh Qaisy, 2014. Geochemical assessment of groundwater contamination with special emphasizes on fluoride, a case study from Midyan Basin, northwestern Saudi Arabia. Environmental Earth Sciences, 71, 1495–1505.
18. Y Nazzal, **Habes Ghrefat**, Marc A. Rosen (2014): Application of multivariate geostatistics in the investigation of heavy metal contamination of roadside dusts from selected highways of the Greater Toronto Area, Canada. Environmental Earth Sciences, 71 (3), 1409-1419.
19. [Yousef Nazzal](http://link.springer.com/search?facet-author=%22Yousef+Nazzal%22), [Izrar Ahmed](http://link.springer.com/search?facet-author=%22Izrar+Ahmed%22), [Nassir S. N. Al-Arifi](http://link.springer.com/search?facet-author=%22Nassir+S.+N.+Al-Arifi%22), [**Habes Ghrefat**](http://link.springer.com/search?facet-author=%22Habes+Ghrefat%22), [Faisal K. Zaidi](http://link.springer.com/search?facet-author=%22Faisal+K.+Zaidi%22), [Mahmud M. El-Waheidi](http://link.springer.com/search?facet-author=%22Mahmud+M.+El-Waheidi%22), [Awni Batayneh](http://link.springer.com/search?facet-author=%22Awni+Batayneh%22), [Taisser Zumlot](http://link.springer.com/search?facet-author=%22Taisser+Zumlot%22), 2014. [A pragmatic approach to study the groundwater quality suitability for domestic and agricultural usage, Saq aquifer, northwest of Saudi Arabia. Environmental Monitoring and Assessment,  Volume: 186,   Issue: 8   Pages: 4655-4667.](http://apps.webofknowledge.com/full_record.do?product=UA&search_mode=GeneralSearch&qid=1&SID=T2stB4sJlHb2BnM9Tlo&page=1&doc=2)
20. Nazzal, Yousef, Zaidi, Faisal K., Ahmed, Izrar, **Ghrefat, Habes**, Naeem, Muhammad, Al-Arifi, Nassir S. N., Al-Shaltoni, Saeed A., Al-Kahtany, Khaled M., 2015. The combination of principal component analysis and geostatistics as a technique in assessment of groundwater hydrochemistry in arid environment.  Current Science , Vol. 108 Issue 6, p1138-1145. 8p.
21. Awni T. Batayneh, Nazem El-Radaideh, **Habes Ghrefat**, Taisser Zumlot, Abdulla M. Al-Rawabdeh, Talal Al-Momani, Aymen Taani., 2015. Spatial distribution and pollution assessment of trace metals in surface sediments of Ziqlab Reservoir, Jordan. [Environmental Monitoring and Assessment](http://link.springer.com/journal/10661). DO1 10.1007/s10661-015-4289-9.
22. Osama M. K. Kassem, **Habes A. Ghrefat**, Haider Zaman, Awni T. Batayneh, Saad Almogren, Yousef Nazzal, Eslam Elawadi., 2015. Integrated Remote Sensing and Structural Analysis Studies of Tayyib Al-Ism Area, Northwestern Arabian Shield, Saudi Arabia. Journal of the Indian Society of Remote Sensing. 2015. DOI 10.1007/s12524-015-0470-4.
23. Yousef Habous Nazzal , Nassir S. N. Al-Arifi , Muhammad Kamran Jafri, Hossam Kishawy ,**Habes A Ghrefat**, Mahmoud M El-Waheidi, Awni T. Batayneh, Taisser A Zumlot., 2015. Study the urban soils contamination by heavy metals for selected industrial locations in the Greater Toronto area, Canada, using multivariate statistical analysis. Geologia Croatica, Vol.68 No.2 Lipanj 2015.
24. Izrar Ahmed, Yousef Nazzal, Faisal K. Zaidi, Nassir S. N. Al-Arifi, **Habes Ghrefat**, Muhammad Naeem., 2015. Hydrogeological vulnerability and pollution risk mapping of the Saq and overlying aquifers using the DRASTIC model and GIS techniques, NW Saudi Arabia. [Environmental Earth Sciences](http://link.springer.com/journal/12665), Volume 74, Issue 2, pp 1303-1318.
25. Faisal K. Zaidi[,](mailto:fzaidi@ksu.edu.sa)Yousef Nazzal,Izrar Ahmed,Abdulaziz M. Al-Bassam, Nasser S. Al-Arifi, **Habes Ghrefat**, Saeed A. Al-Shaltoni., 2015. Hydrochemical processes governing groundwater quality of sedimentary aquifers in Central Saudi Arabia and its environmental implications.[Environmental Earth Sciences](http://link.springer.com/journal/12665), Volume 74, Issue 2, pp 1555-1568.
26. [**Habes Ghrefat**](http://link.springer.com/search?facet-author=%22Habes+Ghrefat%22)**,** [Mahmud M. El-Waheidi](http://link.springer.com/search?facet-author=%22Mahmud+M.+El-Waheidi%22), [Yousef Nazzal](http://link.springer.com/search?facet-author=%22Yousef+Nazzal%22), [Awni Batayneh](http://link.springer.com/search?facet-author=%22Awni+Batayneh%22), [Taisser Zumlot](http://link.springer.com/search?facet-author=%22Taisser+Zumlot%22), 2015. Pollution Assessment of Arsenic and Other Selected Elements in the Groundwater and Soil of the Gulf of Aqaba, Saudi Arabia. Environmental Earth Sciences 75 (3), 1-10.

36. Taisser Zumlot, Awni Batayneh, Haider Zaman, **Habes Ghrefat**, Saad Mogren, 2016. Statistical analysis of different chemical elements in groundwater of northwestern Saudi Arabia. Journal geological society of India, vol.87, pp.469-475

37. Hisham Gahlan, **Habes Ghrefat**, 2017. Delineation of gossan zones in arid regions by Landsat 8 (OLI): An application to mineral exploration in the Eastern Arabian Shield, Saudi Arabia. Natural Resources Research Journal, DOI: 10.1007/s11053-017-9341-8.

38. Yousef Nazzala, Fares M. Howari, Habes Ghrefat, H. A. Kishawy, 2017. Use of Remote Sensing Data in Assessment Land Cover Changes, Land Use Patterns and Land Capabilities in Al-Qassim Region, Saudi Arabia. International Journal of Ecology and Development Vol. 32(3), pp.12-26 ·

**Chapters in books**

**Habes Ghrefat**, Yousef Nazzal, Mahmoud El Wahedi, Nassir S. N. Al-Arifi, Faisal K. Zaidi, Izrar Ahmed, Saeed A. Al-Shaltoni. Mapping Land Cover patterns at the Ghuwaymid Sabkha, Saudi Arabia Using ASTER Reflectance Data.Accepted in Nova Publishers, New York, USA.

**Habes A. Ghrefat**, Munazzam Ali Mahar, Fares M. Howari and Philip Goodell, 2016. Major Type of Uranium Deposits, Production and Resources. In: Benjamin Veress and Jozsi Szigethy (Editors): Horizons in Earth Science Research. Volume 15. Nova Publishers, New York, USA.

**Habes A. Ghrefat, 2015.** Causes, Impacts, Extent, and Control of Desertification. In: Jessica A. Murphy (Editor): Sand Dunes: Conservation, Types and Desertification,  [pp. 137-144](https://www.novapublishers.com/catalog/product_info.php?products_id=30359). Nova Publishers, New York, USA.

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**Habes A. Ghrefat, 2011.** [Gypsum: Properties, Production and Applications](https://www.novapublishers.com/catalog/product_info.php?products_id=15858). In: Delia H. Sampson (Editor): Encyclopedia of Earth Science Research, [pp.191-204](https://www.novapublishers.com/catalog/product_info.php?products_id=22791) . Nova Publishers, New York, USA.