Stanford

Seogi Kang

Postdoctoral Scholar, Geophysics

Bio

BIO

Seogi Kang is a postdoctoral fellow in the the Department of Geophysics at Stanford. His current research focuses on developing an effective workflow to image subsurface hydrostratigraphy at Central Valley of California using airborne electromagnetic method. Seogi is a core contributor to SimPEG, an open source software project for geophysical simulation and inversions.

HONORS AND AWARDS

- Best student oral presentation (Minerals), ASEG-PESA (02/2015)
- Outstanding Student Paper Award (Nearsurface Geophysics), American Geophysical Union (02/2015)
- IDEA Innovation Award 2015: "Open source geophysics project, SimpEG", UBC library (02/2016)

PROFESSIONAL EDUCATION

- Master of Science, Hanyang University (2012)
- Doctor of Philosophy, University of British Columbia (2018)
- Bachelor of Science, Hanyang University (2010)

COMMUNITY AND INTERNATIONAL WORK

- La Plata Internatinoal School on Astronomy and Geophysics (LAPIS) 2019 Short Courses, La Plata, Argentina
- Petroleum Geophysics - Summer 2018 Short Courses, Houston
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- Short Course on airborne electromagnetics, Aarhus, Denmark
- 2017 Distinguished Instructor Short Course
- SimPEG: open-source geophysical simulation and parameter estimation package
- Testing coincidnent loop TEM system for detecting seafloor massive suflide deposit, Okinawa, Japan
- EM geosci project

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

To construct basis of groundwater sustainability plan in California, we develop an effective workflow that can map 3D hydrogeology of the subsurface by using airborne electromagnetic data that can cover large area fast.

Publications

PUBLICATIONS

- **Airborne geophysical method images fast paths for managed recharge of California's groundwater** *ENVIRONMENTAL RESEARCH LETTERS*
  Knight, R., Steklova, K., Miltenberger, A., Kang, S., Goebel, M., Fogg, G.
  2022; 17 (12)

- **Improved Imaging of the Large-Scale Structure of a Groundwater System With Airborne Electromagnetic Data** *WATER RESOURCES RESEARCH*
  Kang, S., Knight, R., Goebel, M.
  2022; 58 (4)

- **Managed aquifer recharge site assessment with electromagnetic imaging: Identification of recharge flow paths** *VADOSE ZONE JOURNAL*
  Pepin, K., Knight, R., Goebel-Szenher, M., Kang, S.
  2022

- **Enhancing the resolving ability of electrical resistivity tomography for imaging saltwater intrusion through improvements in inversion methods: A laboratory and numerical study** *GEOPHYSICS*
  Goebel, M., Knight, R., Kang, S.
  2021; 86 (5): WB101-WB115

- **The effect of power lines on time-domain airborne electromagnetic data** *GEOPHYSICS*
  Kang, S., Dewar, N., Knight, R.
  2021; 86 (2): E123-E141

- **Time domain electromagnetic-induced polarisation: extracting more induced polarisation information from grounded source time domain electromagnetic data** *GEOPHYSICAL PROSPECTING*
  Kang, S., Oldenburg, D. W.
  2018; 66: 74–86

- **Inversion of airborne geophysics over the DO-27/DO-18 kimberlites - Part 3: Induced polarization** *INTERPRETATION-A JOURNAL OF SUBSURFACE CHARACTERIZATION*
  Kang, S., Fournier, D., Oldenburg, D. W.
  2017; 5 (3): T327–T340

- **On recovering distributed IP information from inductive source time domain electromagnetic data** *GEOPHYSICAL JOURNAL INTERNATIONAL*
  Kang, S., Oldenburg, D. W.
  2016; 207 (1): 174–96

- **SIMPEG: An open source framework for simulation and gradient based parameter estimation in geophysical applications** *COMPUTERS & GEOSCIENCES*
  Cockett, R., Kang, S., Heagy, L. J., Pidlisecky, A., Oldenburg, D. W.
  2015; 85: 142–54

- **A feasibility study of CO2 sequestration monitoring using the mCSEM method at a deep brine aquifer in a shallow sea** *GEOPHYSICS*
  Kang, S., Seol, S., Byun, J.
  2012; 77 (2): E117–E126

- **Exploring the Model Space of Airborne Electromagnetic Data to Delineate Large-Scale Structure and Heterogeneity Within an Aquifer System** *WATER RESOURCES RESEARCH*
  Kang, S., Knight, R., Greene, T., Buck, C., Fogg, G.
  2021; 57 (10)

- **Distribution of Vapor and Condensate in a Hydrothermal System: Insights From Self-Potential Inversion at Mount Tongariro, New Zealand** *GEOPHYSICAL RESEARCH LETTERS*
  Miller, C. A., Kang, S. G., Fournier, D., Hill, G.
  2018; 45 (16): 8190–98

- **A framework for simulation and inversion in electromagnetics** *COMPUTERS & GEOSCIENCES*
  Heagy, L. J., Cockett, R., Kang, S., Rosenkjaer, G. K., Oldenburg, D. W.

2017; 107: 1–19

- **Inversion of airborne geophysics over the DO-27/DO-18 kimberlites - Part 2: Electromagnetics** *INTERPRETATION-A JOURNAL OF SUBSURFACE CHARACTERIZATION*
  Fournier, D., Kang, S., McMillan, M. S., Oldenburg, D. W.
  2017; 5 (3): T313–T325
- **mCSEM inversion for CO2 sequestration monitoring at a deep brine aquifer in a shallow sea** *EXPLORATION GEOPHYSICS*
  Kang, S., Noh, K., Seol, S., Byun, J.
  2015; 46 (3): 236–52
- **Pitfalls of 1D inversion of small-loop electromagnetic data for detecting man-made objects** *JOURNAL OF APPLIED GEOPHYSICS*
  Kang, S., Seol, S., Chung, Y., Kwon, H.
  2013; 90: 96–109