Felix Seidel Caprez
Curriculum vitae

Jet Propulsion Laboratory / California Institute of Technology
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Summary of Qualifications

- 9 years of experience in research, academia, teaching, and in customer consultancy
- Responsible, efficient, adaptable, analytical, and enthusiastic team member, collaborator, and leader
- Trained to quickly learn and apply new skills and work on multiple projects with deadlines
- Proven communication skills with public presentation experiences
- Developed atmospheric and operational snow retrievals from airborne imaging spectroscopy data

Experience

Employments

2011 - cur. **Senior Postdoctoral Scholar**, NASA's Jet Propulsion Laboratory and California Institute of Technology, Pasadena, USA

2010 - 2011 **Research Assistant**, University of Zurich, Department of Geography, Remote Sensing Laboratories, Switzerland

2006 - 2011 **Lecturer**, University of Zurich and ETH Zurich, Switzerland

2009 - 2011 **Head**, Scientific NPOC (Swiss National Point of Contact for Satellite Images), Zurich, Switzerland

2008 **Astronaut Applicant**, European Space Agency

2008 - 2011 **Chief-Pilot,** Glider Tow, Zurich, Switzerland

2004 - 2009 **Staff member,** Scientific NPOC (Swiss National Point of Contact for Satellite Images), Zurich, Switzerland

2002 - 2011 **Teacher,** Aviation Meteorology for Pilots, Zurich, Switzerland

2002 - 2004 **Staff member**, Computer Support**,** Institute of Geology, ETH Zurich, Switzerland.

2002 **Internship,** International Pacific Research Center, University of Hawaii, Honolulu, USA.

Education

2011 **Ph.D.**, University of Zurich (UZH), Department of Geography, Remote Sensing Laboratories, Switzerland. Thesis: Radiative Transfer and Aerosol Remote Sensing. Advisors: M.E. Schaepman (UZH), A.A. Kokhanovsky (University of Bremen, D.) and K.I. Itten (UZH), Assessor: A. Lyapustin (NASA-GSFC)

2008 European Space Agency - Earth Observation Summer School on Earth System Monitoring and Modelling, Frascati, Italy

2004 **M.Sc.** (equivalent to Dipl. Natw. ETH), Atmospheric and Climate Sciences (IAC), ETH Zurich, Switzerland
Thesis: Temporal and Spatial Variations in Remotely Sensed Atmospheric Water Vapor over North Africa from 1983 to 2003. Advisors: D. Grebner (ETH) and U. Frei (UZH)

2002 **B.Sc.** (equivalent to Vordiplom ETH), Earth Sciences, ETH Zurich, Switzerland

Significant Achievements and Skills

Research

- Published in international scientific journals with an high impact and science conference contributions with numerous public presentation experiences
- Reviewed scientific articles by leading experts in aerosol remote sensing by invitation from top journals
- Developed the imaging spectroscopy data processing software for NASA's Airborne Snow Observatory, proven to derive snow products in near real-time for customers in water resources management and research
- Developed a fast radiative transfer code of minimized complexity for the integration in operational atmospheric retrieval algorithms

Professional

- Operated LiDAR and hyperspectral imaging instruments onboard NASA's Airborne Snow Observatory aircraft
- Performed analysis on the user requirements of Swiss Federal entities for the European Programme for Global Monitoring for Environment and Security (Copernicus, GMES), resulting in a direct impact on the Swiss space policy
- Acquired and led a project with the Swiss Federal Department of Foreign Affairs to assess its needs for geographic information, achieving related improvements throughout the department
- Consulted Swiss entities on Earth-Observation and established a broad and highly valuable network amongst representatives of Federal departments, Universities, ETH Domain, and industry
- Led one employee at the scientific Swiss National Point of Contact for Satellite Images and managed a glider tow team, and operations with ca. 10 pilots
- Demonstrated skills required to pass multiple levels of Astronaut and Military Pilot selections

Awards

2011 Outstanding Student Poster Award of the European Geosciences Union at the EGU General Assembly, Vienna, 2011.

Memberships

2011 - cur. American Geophysical Union (AGU)

2010 - 2011 European Geosciences Union (EGU)

2009 - 2011 Swiss interdepartmental coordination committee on space issues, working group GMES (GMES-IKAR)

2009 - 2011 Swiss interdepartmental working group remote sensing (IDA-Fern)

2006 - 2011 Institute of Electrical and Electronics Engineers (IEEE)

2005 - 2011 International society for optics and photonics (SPIE)

1994 - 2011 Aero-Club Switzerland (AeCS)

Academic Record

Selected Peer-reviewed Publications

Seidel, F.C., Rittger, K., Painter, T.H., 2013. Temporal and spatial variation in radiative forcing by light absorbing impurities in mountain snow cover. In preparation for submission to The Cryosphere.

Seidel, F.C., Painter, T.H., 2013. Imaging Spectroscopy of Snow Grain Size and Snow Liquid Water Content. In preparation for submission to Geophysical Research Letters.

Thompson, D. R., de la Torre Juárez, M., Barker, C. M., Holeman, J., Lundeen, S., Mulligan, S., Painter, T. H., Podest, E., **Seidel, F. C.**, and Ustinov, E., 2013. Airborne imaging spectroscopy to monitor the evolution of urban mosquito microhabitats, Remote Sensing of Environment, sumbitted.

Painter, T.H., **Seidel, F.C.**, Bryant, A.C., Skiles, S.M., Rittger, K., 2013. Imaging spectroscopy of albedo and radiative forcing by light absorbing impurities in mountain snow. Journal of Geophysical Research: Atmospheres, pp. n/a–n/a.
`http://dx.doi.org/10.1002/jgrd.50520`

Seidel, F.C., Popp, C., 2012. Critical surface albedo and its implications to aerosol remote sensing. Atmos. Meas. Tech., 5, 1653–1665.
`http://dx.doi.org/10.5194/amt-5-1653-2012`

Seidel, F.C., Kokhanovsky, A.A., Schaepman, M.E., 2012. Fast retrieval of aerosol optical depth and its sensitivity to surface albedo using remote sensing data. Atmos. Res. 116, 22–32.
`http://dx.doi.org/10.1016/j.atmosres.2011.03.006`

Seidel, F.C., Kokhanovsky, A.A., Schaepman, M.E., 2010. Fast and simple model for atmospheric radiative transfer. Atmos. Meas. Tech. 3 (4), 1129–1141.
`http://dx.doi.org/10.3390/s8031901`

Itten, K.I., Dell'Endice, F., Hueni, A., Kneubühler, M., Schläpfer, D., Odermatt, D., **Seidel, F.**, Huber, S., Schopfer, J., Kellenberger, T., Bühler, Y., D'Odorico, P., Nieke, J., Alberti, E., Meuleman, K, 2008. APEX – the Hyperspectral ESA Airborne Prism Experiment. Sensors 8 (10), 6235–6259.
`http://dx.doi.org/10.3390/s8106235`

Seidel, F., Schläpfer, D., Nieke, J., Itten, K.I, 2008. Sensor performance requirements for the retrieval of atmospheric aerosols by airborne optical remote sensing. Sensors 8 (3), 1901–1914.
`http://dx.doi.org/10.3390/s8031901`

Other Journal Publications

Buehler, Y., **Seidel, F.**, Kellenberger, T., 2006. Unwetter 2005: Schnelle Schadenskartierung mit Satellitendaten zur Unterstützung des Katastrophen-managements. Geomatik Schweiz 104 (9), 494–497

Selected Conference Publications

Davis, A.B., Kalashnikova, O.V., Diner, D.J., Garay, M.J., Lo, M.W., Martonchik, J.V., Natraj, V., Sanghavi, S., **Seidel, F.C.**, West, R.A., Xu, F., Zhai, P., Kokhanovsky, A.A., 2012. The JPL Benchmarking Suite for Scalar and Vector 1D Radiative Transfer in Scattering Atmospheres. AGU Fall Meeting 2012. (Talk)

Painter, T.H., Mattmann, C.A., Brodzik, M.J., Bryant, A.C., Goodale, C.E., Hart, A.F., Ramirez, P., Rittger, K., **Seidel**, **F.C.**, Zimdars, P.A., 2012. High fidelity remote sensing of snow properties from MODIS and the Airborne Snow Observatory: Snowflakes to Terrabytes. AGU Fall Meeting 2012. (Talk)

Seidel, F.C., Painter, T.H., Bryant, A.C., Skiles, M.S., Rittger, K., 2012. Retrievals of Dust and Black Carbon Radiative Forcing in Snow using Imaging Spectroscopy. AGU Fall Meeting 2012. (Poster)

Seidel, F.C., Popp, C., 2012. Implications of BRF uncertainties to AOD retrievals from single-view and intensity-only data, 1. Team Meeting on Studies of atmospheric aerosol using multi-angle spectropolarimetry at ISSI. (Talk)

Seidel, F.C., Painter, T.H., Skiles, M.S., Bryant, A.C., 2012. Radiative forcing by dust in mountain snow from imaging spectroscopy data. International Radiation Symposium 2012. (Talk)

Seidel, F.C., Kokhanovsky, A.A., Schaepman, M.E., 2011. Sensitivity of aerosol retrieval to surface albedo. In: Geophysical Research Abstracts. Vol. 13, EGU2011–1509. (Poster recognised with the "**Outstanding Student Poster Award**")

Seidel, F.C., Schläpfer, D. Itten, K.I., 2009. Efficient Radiative Transfer Calculation and Sensor Performance Requirements for the Aerosol Retrieval by Airborne Imaging Spectroscopy. In proceedings: 6th EARSeL Imaging Spectroscopy SIG workshop, Tel Aviv, Israel. (Talk)

Seidel, F., Nieke, J., Schläpfer, D., Itten, K. I., d Bowles, J. H., 2006. Evaluation of near-UV/blue aerosol optical thickness retrieval from airborne hyperspectral imagery. In: Proceedings-IEEE International Geoscience and Remote Sensing Symposium IGARSS. pp. 2247–2250. (Talk)

Seidel, F., Buehler, Y., Kellenberger, T., Perret, J.-P., 2006. Satellite response to the August 2005 floods in Switzerland: Charter call 100., Proceedings of the International Disaster Reduction Conference, Davos Switzerland. Vol. 3. Swiss Federal Research Institute WSL, pp. 531–533. (Talk & Poster)

Seidel, F., 2005. NPOC Response to Charter Call 100, Switzerland Flood. EURISY Conference "Benefits from Space for Sectorial Policy for High Mountain Security". (Poster)

Selected Reports

Treichler, D., **Seidel, F.**, Schaepman, M., 2010. Geographische Informationen – Studie zu Bedürfnissen des EDA. Bericht zu Handen EDA, Remote Sensing Laboratories, University of Zurich, University of Zurich.

Seidel, F., Treichler, D., 2010. Evaluation der Nutzerbedürfnisse und Beiträge des Bundes an GMES Initial Operations (GIO) und GMES. Bericht zu Handen IKAR-GMES Arbeitsgruppe Nutzerstrategie - Erweiterte Befragung – GIO und GMES Operational Phase, National Point of Contact, University of Zurich.

Seidel, F., Treichler, D., 2009. Evaluation der Nutzerbedürfnisse und Beiträge des Bundes an GMES Initial Operations (GIO). Bericht zu Handen IKAR-GMES Arbeitsgruppe Nutzerstrategie, National Point of Contact, University of Zurich.

Seidel, F., Kellenberger, T., Buehler, Y., 2009. Fernerkundung in der Schweiz: Eine Übersicht. Bericht zu Handen SBF - Bereich Raumfahrt, National Point of Contact, University of Zurich.

Seidel, F., Kellenberger, T., Buehler, Y., 2008. Nutzerstrategie der Schweiz zur Europäischen Initiative "Global Monitoring for Environment and Security" (GMES). Bericht zu Handen IKAR-GMES Arbeitsgruppe Nutzerstrategie, National Point of Contact, University of Zurich.

Kellenberger, T., **Seidel, F.**, 2006. Verwendung von Fernerkundungsdaten zur raschen Kartendarstellung (Rapid Mapping). Bericht zu Handen Bundesamt für Bevölkerungsschutz BABS, National Point of Contact, University of Zurich.

Theses

Seidel, F.C., 2011. Radiative Transfer and Aerosol Remote Sensing. PhD thesis University of Zurich

Seidel, F.C., 2004. Temporal and spatial variations in remotely sensed atmospheric water vapor over North Africa from 1983 to 2003. Diploma thesis ETH Zurich

Teaching

Lectures

2009 - 2011 Grundlagen Fernerkundung / Remote Sensing I (Lecture and Exercises), Subtopic: Data Archives & Repositories, ca. 100 students

2006 - 2011 Grundlagen Fernerkundung / Remote Sensing I (Lecture and Exercises), Subtopic: Time Series & Weather Satellites, ca. 100 students

2002 - 2011 Aviation Meteorology for Pilots, ca. 10 students

M.Sc. Theses supervision

2008 Julia Walterspiel, Lidar Design, Construction and Measurements of Volcanic Aerosols on Hawaii. In collaboration with J.N. Porter at the Hawaii Institute of Geophysics and Planetology, SOEST, Univ. of Hawaii at Manoa

2008 Daniel Lachat, Fernerkundung von urbanen Aerosolen mittels LIDAR-Ceilometer. In collaboration with U.K. Krieger at Atmospheric and Climate Sciences (IAC), ETH Zurich

2007 Fabian Fusina, The impact of Ice Supersaturation Regions (ISSR) and Thin Cirrus Clouds on Radiation. In collaboration with P. Spichtinger at Atmospheric and Climate Sciences (IAC), ETH Zurich

B.Sc. Theses supervision

2006 - 2009 7 bachelor theses on Remote Sensing of the Global Change, the Atmosphere, and Natural Disasters.