# Curriculum vitae

## Personal Data


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|---|---|
| Name | Anupma Prakash |
| Current Position | Professor of Geophysics (Remote Sensing)* |
| Address | Geophysical Institute (GI), University of Alaska Fairbanks (UAF)<br>903 Koyukuk Dr., Fairbanks, AK, 99775-7320, U.S.A. |
| Phone | 1-907-4741897 |
| Fax | 1-907-4747290 |
| Email | aprakash@alaska.edu |
| URL | http://www.gi.alaska.edu/~prakash |
| Languages | English (excellent); Hindi (mother tongue); German (fair). |
| *Note | Appointment is 50% GI and 50% CNSM/ Department of Geosciences |


## Education

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|---|---|
| 1992 to 1996 | PhD in Earth Sciences from Indian Institute of Technology - Roorkee (India)<br>Thesis title: *Remote Sensing - GIS based geoenvironmental studies in Jharia coalfield, India, with special reference to coalmine fires.* |
| 1989 to 1991 | MSc in Geology from Lucknow University (India). |
| 1986 to 1989 | BSc in Geology, Zoology and Botany from Lucknow University (India). |

## Teaching

| | |
|---|---|
| Spring (even) | GEOS 458/658: Geoscience applications of GPS and GIS |
| Spring (odd) | GEOS 654: Visible and Infrared Remote Sensing |
| Fall | GEOS 422: Geoscience Applications of Remote Sensing |

## Field Experience

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|---|---|
| Summer 2012-15 | Fairbanks, AK; Establishing two CalVal sites with instrumented flux towers |
| August 2012 | Dillingham, Togiak Wildlife Refuge, AK for airborne data acquisition |
| Summer 2010-12 | Pilgrim, Western Alaska, for geothermal exploration and drilling |
| August 2008 | Tok, Interior Alaska, for ground validation of permafrost mapping |
| July 2008 | Kaktovik, ANWR, Alaska North Slope for thermal airborne campaign |
| November 2007 | Prudhoe Bay, Alaska North Slope, for lake gas sampling |
| August 2007 | Delta Junction, Interior Alaska, for ground validation of permafrost mapping |
| May 2006 | Jharia Coalfields, India, for FLIR data, gas and condensate samples |
| July 2005 | Barrow, Alaska North Slope, for measurements on permafrost polygons |
| April 2005 | Unuk River, SE Alaska, for thermal infrared airborne campaign |
| July 2004 | Colville River, Alaska North Slope, for reconnaissance |
| June 2004 | Healey, Interior Alaska, for taking coal fire gas and sublimate samples |
| April 2002 | Livengood, Interior Alaska, for reconnaissance of DGGs training field site |
| June 2000 | Tabernas, Spain to teach filed measurement techniques |
| November 1999 | Guantanamo, Cuba, for geological mapping |
| August 1999 | Brugge, Belgium, to teach introductory field measurements |
| November 1998 | Balaghat, India, for geological mapping for mineral exploration |
| Aug – Sep, 1997 | Ningxia, China, for coal fire studies |
| Nov 1994, 1995 | Jharia, India, for coal fire studies |

## Students Supervised

**As main supervisor (committee chair/co-chair)**
**Post Doc (4) / Research technician (1)**

| | |
|---|---|
| 2014-current | Marcel Buchhorn - Imaging spectroscopy |
| 2014-2015 | Robert McNabb - Object oriented habitat mapping |
| 2011-2013 | Jordi Cristobal - Evapotranspiration mapping and modeling |
| 2010-2013 | Christian Haselwimmer - Geothermal exploration |
| 2009-2010 | Chris Wyatt - Evapotranspiration estimation |

**Ph.D. (6)**

| | |
|---|---|
| Current | Matthew Balazs, Erin Trochim, Chris Waigl |
| Graduated in 2015 | Derek Starkenburg |
| Graduated in 2013 | Jason Stolarski |
| Graduated in 2011 | Santosh Panda |

**Masters (22)**

| | |
|---|---|
| Current | Stephanie Meggers, Jacob Rosenthal, Joshua Paul |
| Graduated in 2013 | Arvind Chittambakkam, Josh Miller |
| Graduated in 2012 | Kate Schaefer, Angelica Floyd |
| Graduated in 2008 | Kristin Papp, Sudipta Sarkar |
| Graduated in 2007 | Jeff Green |
| Graduated in 2006 | Thomas Oommen |
| Graduated in 2005 | Antony Berthelote |
| Graduated in 2002 | Chunqing Wang, Tilahun Kerse |
| Graduated in 2001 | Christopher Duku, Simon Njuguna, Ebenezer Agyakwabadu, Santa Gilgonzalez, Mulumebet Yigletu, John Baga Arumba |
| Graduated in 2000 | Kenya Nunez Cambra, Mongontsetseg Baldondarj |

**Undergraduates/ Summer interns (15)**

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|---|---|
| Summer 2013 | Katelyn Foster, Akida Ferguson, Andrew Kluge, Shaundra Cook, Kristen Stilson, Emily Jones |
| Summer 2009 | Christian Kienholz, Jessica Beres |
| Spring 2008 | Robert Mikol |
| Summer 2006 | Walter Cameron |
| Summer 2005 | Eric Burger |
| Summer 2004 | Stefan Gaston, Katherine Habermas |
| Fall 2003 | Kristin Dean |
| Summer 2003 | Christian Nielsen |

**As committee member since 2002 only (19 Masters; 9 Ph.D.)**

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| Masters: | James Madden, Kevin Fraley, Cheryl Sanders, Lila Tauzer, Christine Woll, Lisa Wirth, Angela Ekstrand, David Roon, Abigail Gleason, Meghan Tillapaugh, Jeff Perschbacher, Rachael Puchrik, Jena Hecker, Dragos Vas, Kathy Smikrud, Cynthia Peters, Steve Smith, Andrea Steffke, Courtney Kerney. |
| Ph.D.: | Maryam Bukade, Vinay Kayetha, Tim Petty, Chas Jones, Ashwani Raju (foreign), Stan Triebenbach (discontinued), Ken Papp (discontinued), Luo Huayang, and Reginald R. Muskett. |

**As foreign Ph.D. examiner (3)**

Hina Pande: Ph.D. from Indian Institute of Technology – Roorkee (India)

Daniel Limpitlaw: Joint Ph.D. between University of Witwatersrand, Johannesburg, South Africa and ITC, the Netherlands.

Debashis Mitra: Joint Ph.D. between University of Burdwan, India and ITC

## Professional Experience

2009 to current Professor of Geophysics (Remote Sensing) at UAF DGG (50%); GI (50%)

2002 to 2009 Assoc. Prof. of Geophysics (Remote Sensing) at UAF DGG (50%); GI (50%)

Projects

<u>As Principal Investigator</u>: (second $ figure denotes matching funds)

- National Science Foundation: Alaska EPSCoR: Alaska's Changing Environment (ACE) (PI since January 2015). $ 20 Million+ $ 4 Million
- Fish and Wildlife Services: Use of hyperspectral Imaging to test 'proof of concept' technique for wetland classification and water chemistry assessment of Alaska refuges. $46,000.
- National Science Foundation: Acquisition of a hyperspectral imaging system to support scientific research, applied studies, and education in the state of Alaska. $ 427,770 + $ 183,320
- National Park Service: Assessing Tide Water Glacial Ice Availability for Harbor Seals in Glacier Bay National Park & Preserve, Alaska. $ 298,517
- Department of Military & Veterans Affairs: Developing a Decision Support System for Emergency Management Services in the Fairbanks North Star Borough. $25,000
- Delaware State University: Enhancing Geographic Information System Education and Delivery through Collaboration: Curricula Design, Faculty, Staff, and Student Training and Development, and Extension Services (Prakash PI for UAF Subaward; Original grant through U.S. Department of Agriculture). Subaward value $ 47,951
- NASA EPSCoR: Estimating Spatio-Temporal Variability in Evapotranspiration in Interior Alaska Using Field Measurements, Modeling and Remote Sensing. $ 749,998 + $ 375,035
- USDI Geological Survey: Effects of Habitat Change on Fish Condition in Undeveloped Beaufort Sea Coastal Lagoons (Former PI: J. Margraf). $ 1,071,616
- U.S. Fish and Wildlife Service: Fish Stocks and Habitat Assessment of the near-shore Beaufort Sea (Former PI: J. Margraf). $ 763,711
- NASA: Characterizing Water Tracks in Headwater Drainage Basins of the Alaskan Arctic – Fellowship for graduate student. $101,405
- NASAs Alaska EPSCoR Program: Mapping Alaskan Arctic Surface Composition and Change Using Multispectral / Hyperspectral Remote Sensing. $ 40,000
- Alaska Space Grant Program: Establishing Baseline Data to Support Fairbanks Community Climate Observatory at Creamer's Refuge. $32,178 + $ 34,987.56
- City of Akutan: Thermal Infrared Data Analysis for Akutan Area. $ 19,991.00

- Bureau of Land Management: Arctic North Slope Natural Gas Hydrate Assessment and Exploration Project. $ 199,970
- University of Colorado: Ice Patch Geoarcheology and Cultural Ecology. Subcontract through UAF faculty Will Harrison. $ 11,017
- University of Alaska VPAA: Data Acquisition Instrumentation to Promote Student Based Research and Inquiry Based Learning. $17,950
- National Science Foundation OEDG: AMIDST: Attracting Minorities to Geosciences through Involved Digital Story Telling. $ 94,737
- George Mason University: Incorporating NASA data and geobrain technology in post-secondary research and education. $ 20,007
- Alaska Division of Geological and Geophysical Surveys: Remote Sensing Investigations for the Alaska Pipeline Corridor. $ 40,000
- AK Space Grant Program: Rem Sen Investigations for the Alaska Pipeline Corridor – 1:1 contribution to the Industry partnership from DGGS: $ 40,000
- NASA and University Space Research Association funded module development for space based observations and data integration supporting the International Polar Year; and developing the ESSE Design guide chapter on data, tools and models. $ 27,500
- NASA and University Space Research Association program: Earth System Science for the 21st Century funded project entitled "Introduction to Geoinformatics for Earth System Science Education" $139,360
- Alaska Space Grant Program: Project for "Sequel educational CD and web site creation" $ 18,000
- Bureau of Land Management: Hyperspectral detection of pingos and other gas hydrate indicators in Alaska North Slope. $ 132,000
- Fire Trade LLC: Green house gas reduction and emission trading in the Jharia Coalfield, India. $ 8,600
- Alaska Space Grant Program: Promoting GIS – GPS in Alaska Schools. $17,600
- Alaska Space Grant Program: Generating education web site and CD for middle schools. $ 17,600
- Geographic Information Network of Alaska: Content development for learning resource. $ 5,700
- North Slope Borough School District: GIS and GPS instructional activities in the schools district. $ 2,355

<u>As Co-Investigator/Senior Personnel</u>: (second $ figure denotes matching funds)

- National Science Foundation: BRoadening Interest in Geosciences, Habitat, and Technology among Girls (BRIGHT Girls). $ 1,137,024.
- US Geological Survey: Chandalar river salmon riverscape-scale habitat assessment and monitoring. $ 165,510.
- Alaska's NASA EPSCoR: Estimating year-round surface energy fluxes in Alaska Arctic and sub-Arctic watersheds through remote sensing and field measurements. $ 40,000
- National Science Foundation: Preparing Responsive Educators using Place-based Authentic Research in Earth Systems. $ 1,799,946
- U.S. Fish and Wildlife Service: Togiak River Chinook Salmon Habitat Use and Genetic Analysis. $ 171,121
- Department of Energy: Validation of Innovative Exploration Techniques:

Pilgrim Hotsprings, Alaska. $ 4,616,879

- Alaska Energy Authority: Pilgrim Hot Springs Geothermal Resource Assessment. $ 1,748,343
- Alaska Space Grant Program: Habitat change and avian communities as indicators of environmental change at Creamer's Refuge, Fairbanks, AK $19,999 + $20,000
- National Space Grant Program: University of Alaska Space Grant Program's year four proposal. $ 534,983 + $ 399,987
- NASAs National EPSCoR Program: Alaska's NASA EPSCoR Program. $400,000 + $400,000
- National Space Grant Program: University of Alaska Space Grant Program's year three proposal. $400,000 + $ 300,000
- National Space Grant Program: Augmentation for the Alaska Space Grant Program Geospatial Workforce Development Project. $168,000
- National Science Foundation GeoEd: Experiential Discoveries in Geoscience Education (EDGE). $285,215
- Department of Energy: Integrated geothermal exploration program for the Chena Hot Spring $1.3 million; UAF subcontract $ 48,088
- Mineral Management Service: Development of a Platinum exploration GIS database for the Goodnews Bay region, Alaska. $137,625
- National Space Grant Program: Geospatial Workforce Development. $100,000
- National Space Grant Program: Augmentation for the Alaska Space Grant Program FY04. $174,920

1998 to 2002 Assistant professor at the Geological Survey Division, International Institute for Geoinformation Science and Earth Observation (ITC), Enschede, The Netherlands; Responsibility: teaching (primary), research and consultancy

Projects

<u>As Principal Investigator</u>:

- PI of ITC for DLR-ITC project on "Remote Sensing investigations of coal mining areas in China" ~$300,000

<u>As Co-Investigator</u>:

- European Space Agency project on "ERS SAR interferometry to monitor ground deformation due to subsurface material transfer"
- Indian Institute of Remote Sensing - ITC project on mineral exploration
- European Unions INCO program funded project: "A Euro-Latin American Network on Environmental Assessment and Management (ELANEM)"
- European Research Network project for the application of "Geomorphology and Environmental Impact Assessment to Transportation System (GETS)"

1996 to 1998 Post-Doctoral Researcher at the Applied Geomorphological Survey Division, International Institute for Geoinformation Science and Earth Observation (ITC), Enschede, The Netherlands

Projects

<u>As Co-Investigator</u>:

- Dutch and Chinese Government collaborative project "Environmental Monitoring of Spontaneous Combustion in North China Coalfields"

- Western European Union project "Development of a multimedia tutorial on image and data fusion"

Referee for

International Journals:

- International Journal of Image and Data Fusion
- International Journal of Remote Sensing
- IEEE Transactions on Geoscience and Remote Sensing
- International Journal of Applied Earth Observation and Geoinformation
- International Journal of Coal Geology
- International Journal of Image and Data Fusion
- Journal of Volcanology
- Journal of Geography
- Journal of Environmental Engineering and Science
- Photogrammetric Engineering and Remote Sensing
- Remote Sensing
- Remote Sensing of Environment
- Terra Nova

National/Regional Journals:

- Asian Studies Review
- Publications of the Indian Geological Congress
- Journal of National Institute of Environmental Health Sciences

Funding Agencies:

- Indo-US Science and Technology Forum
- NASAs Solid Earth Program
- NASAs Earth Science Enterprise Education Product review
- NASAs ESSE21 program
- NASAs National Space Grant Research and Education Award program
- NASAs Earth Science Enterprise REASONCAN program
- NSF GeoEd Program
- NSF CyberInfrastructure Program
- NSF Office of Polar Program
- US Fish and Wildlife Service
- Volkswagen Stiftung (Germany)

Membership

Professional Societies:

- American Geophysical Union – Life member
- American Society of Photogrammetry and Remote Sensing
- Association of Women Geoscientists
- Geological Society of America
- Indian Geological Congress – Life member
- Indian Society of Remote Sensing – Life member
- National Association of Geoscience Teachers
- Sigma Xi, Alaska Chapter – Life member
- Alaska Geological Society

Working Groups:

- Member, NASA's Hyperspectral Infrared Imager (HyspIRI) Thermal Infrared Science Working Group (2007-2009).
- Chair, Data Access Working Group for the Digital Library of Earth Science Education (DLESE) (2005-2007); member since 2004
- Member, Education Evaluation Working Group for ESSE21 (2005-2006)

Science Investigation Teams:

- Member, NASAs HyspIRI Satellite Mission Science Team (since 2009)
- Member, Science Investigation team for BIRD data, a satellite infrared sensor of the German Space Agency (1999-2005)
- Member, Science Investigation team for FOCUS, a planned satellite thermal infrared sensor of the German Space Agency (2003-2004)

## Awards and Honors

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| 2014 | Top 10% reviewer for the International Journal of Applied Earth Observation and Geoinformation |
| 2014 | Honored at UAF author's reception for edited book Coal and peat fires: A global perspective, Volume 3, Case studies. |
| 2014 | CNSM faculty bonus for strong performance in research, teaching and service |
| 2014 | Nominated for Usibelli research award |
| 2013 | September recipient: Chancellor's choice of 'UAFs top faculty and staff' |
| 2013 | GRC best presentation award to student Josh Miller, for co-authored work |
| 2013 | Honored at UAF author's reception for edited book Coal and peat fires: A global perspective, Volume 2, Coal- photos and multimedia tour. |
| 2012 | Teaching Excellence: Dean's Annual Recognition List |
| 2011 | Teaching Excellence: Dean's Annual Recognition List |
| 2011 | Honored at UAF author's reception for edited book Coal and peat fires: A global perspective, Volume 1, Coal- combustion and geology. |
| 2011 | Online curricula on Arctic sea ice selected for inclusion in the NSF Climate Literacy & Energy Awareness Network (CLEAN) collection. |
| 2010 | Terris and Katrina Moore Prize for outstanding research at the Geophysical Institute (first female recipient) |
| 2009 | Best Technical Paper Award to team for paper on $CO_2$ emissions from coal fires presented at the Annual International Coal Conference by Kolker. |
| 2009 | Promotion to the rank of Professor |
| 2009 | Faculty bonus from UAF for establishing Geoinformatics program |
| 2008 | Recognition from UAF College of Natural Science and Mathematics for Excellence in Teaching |
| 2006 | Awarded Tenure as Associate Professor at UAF |
| 2006 | Teaching Excellence: Dean's Annual Recognition List |
| 2003 | On Top of the World: The Best Applications of 2003: For my GIS work for coal mine fire monitoring, I received a third place in this annual contest run by the *Geospatial Solutions* magazine. |
| 1999 | 'Best of the Session' award at the Thirteenth International conference and workshop on Applied Geologic Remote Sensing, Vancouver, British Columbia, |

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| | Canada |
| 1996 | First and second Khosla Research Prizes for research papers published in the International Journal of Remote Sensing. |
| 1994 to 1996 | Senior Research Fellowship of the Council of Scientific and Industrial Research (India). |
| 1994 to 1995 | Most Outstanding Scholar certificate of the Forum of Research Scholars at the University of Roorkee. |
| 1992 to 1994 | Junior Research Fellowship of the Council of Scientific and Industrial Research (India). |
| 1991 | Gold Medal from the Palaeontological Society of India. |
| 1989 | University Gold Medal for standing first in Geology, Zoology, Botany Group. |

## Research Publications

Several research articles in international refereed journals (see attached list).

## Professional Service

- Local organizer and host, USDA GIS workshop (http://www2.gi.alaska.edu/~prakash/usda_gis_workshop/grant.html)
- Member of NASAs HyspIRI Satellite Mission Science Team (since 2009)
- Member of NASAs HyspIRI Thermal Infrared Working Group (2007- 2009)
- Editorial board member for the International Journal of Applied Earth Observation and Geoinformation (since 2012)
- Associate Editor for International Journal of Image and Data Fusion (2009-2012)
- Secretary & Treasurer, Coal Geology Division, Geological Society of America (2006-2009)
- Panel reviewer for 2 NSF panels and 6 NASA panels (since 2004)
- Frequent reviewer for several peer reviewed journals and funding agencies
- Mentor for TASK (Teaching Alaskans Sharing Knowledge) fellows (2005-2009)
- Local organizer and host, 2005 ESSE21 meeting of ~75 participants; and GIS training workshops for a consortium on minority-serving institutes (2003-2007)
- Convenor for several special sessions at professionals meetings of AGU; GSA; ASPRS and speciality conferences
- Member of NSFs Digital Library and Data Access Working Group (2004-2007)
- Member advisory board for UAFs NSF Advance program for women faculty recruitment, retention, and equity

## University Service and Governance

- Principal Investigator and Project Director for Alaska's NSF EPSCoR Program (current).
- Chair, Chapman Chair Search Committee (2015)
- Member, UAF Planning and Budget Committee (2014)
- Member, UAF Interdisciplinary Admissions Review Committee (2013-2015)
- Associate Dean, UAF College of Natural Science and Mathematics (CNSM) (since Sep 2012)

- Director, CNSM Division of Research (since Sep 2012)
- Chair, UAF Limited Solicitation Review Committee (2012-2014)
- Co-chair, UAF Department of Geology and Geophysics (June 2011 - August 2012)
- Chair, UAF Geophysical Institute's Remote Sensing Group (May 2011 - August 2012)
- Member, UAF Honorary Degree Selection Committee (2009-2011)
- Member, UAF Graduate Academic Advisory Committee (2009-2011)
- Faculty Senate Alternate for CNSM (2009-2011)
- Member, DGGS graduate intern selection committee for Department of Geology and Geophysics (2008)
- Member Advisory Board for UAFs Faculty Development Program (since 2006)
- Co-chair Remote Sensing Group, GI Faculty Council (2006-2011)
- Member University wide Exceptional Student Needs Committee (2006)
- Faculty Senate Member for CNSM (2004-2006)
- Member, University wide committee on Faculty Affairs (2004-2006)
- Member, Graduate Admissions committee for Department of Geology and Geophysics (2004; 2006)
- Member, Faculty Search Committees for Remote Sensing (2002-2003); and DGG (2010)
- Dean of students for ITC's geological resource management and environmental geology program (2000-2002)

## Public Service in Professional Capacity

- Lectures and talks to school students, museum audience and general public (routinely)
- Newsletter Editor, Coal Geology Division, Geological Society of America (2006-2009)
- Instructor for Earth and Space Science Module for the Alaska Summer Research Academy (ASRA) (2007; 2008)
- Professional development workshops for Alaska school teachers (2004-2009)
- Served as judge for several local, district, and Alaska regional science fairs (since 2006)
- Gave several interviews to radio, news papers and magazines (see publication list)
- Designed and maintain a personal web site at www.gi.alaska.edu/~prakash. The coal fire section of this site is one of internets most comprehensive web site of coal mine fires (www.coalfires.net)
- Contributed routinely to GI/CNSM newsletters, remote sensing program flyer and poster
- Generated 3 web-based resources for undergraduate education (2005-2007)
- Generated 3 CDs and 4 web based educational product for middle schools (2003; 2006; 2008; 2009)
- Introduced GIS and GPS education in Alaskan Schools: Barrow (2003); Fairbanks Schools (2004; 2005; 2009); Teller and Nome (2008)