Curriculum Vitae

Dr.-Ing. Francisco López-Dekker

Geoscience and Remote Sensing Department
Faculty of Civil Engineering and Geosciences
Delft University of Technology (TU Delft)

1. Resume 2
Personal Information 2
Education 2
Research & Professional Experience 2
Teaching Experience 4
Direction of Ph.D. Theses 5
Memberships and Committees 5
Prizes, Distinctions and Accreditations 6
Languages 6
Externally Funded Research Projects 6
2. Publications and Patents 10
Publications overview 10
Publications in Peer Reviewed Journals 10
Book Chapters 13
Patents 13
Conference Papers (Selection) 14

1. Resume

PERSONAL INFORMATION



Name:	Francisco (Paco) López-Dekker
Birthdate:	
Place of birth:	Nijmegen, The Netherlands
Nationality:	Spanish

EDUCATION

1999 – 2003	Ph.D. in Electrical and Computer Engineering, University of Massachussetts, Amherst (UMass).
Title	*Spatial and Temporal Statistics of Clear-Air-Radar Signals*
Ph.D. advisor	Stephen J. Frasier
Committee	Stephen J. Frasier, James B. Mead, Dennis L. Goeckel, Bruce Turkington, Dennis W.Thomson and John C. Wyngaard
1997 – 1998	M.S. in Electrical and Computer Engineering, University of California, Irvine (UCI).
Title	*Three Dimensional Electromagnetic Field Simulation of Integrated Metal-Insulator-Metal Capacitors*
M.S. advisor	G. P. Li
1991 – 1997	*Ingeniero* Degree in Telecommunications Engineering, Universitat Politècnica de Catalunya (UPC), Barcelona
Final Year Thesis Advisor	Generation of digital elevation models in SAR interferometry through combination of pairs of orbits Antoni Broquetas Ibars
1990 – 1991	*Propedeuse* in Physics, Rijks Universiteit Groningen (RUG)

RESEARCH & PROFESSIONAL EXPERIENCE

Since September 2016	**Associate Professor**, Geoscience and Remote Sensing Department, Faculty of Civil Engineering and Geosciences, Delft University of Technology (TU Delft)
Responsibilities and main activities	• Main responsible two courses (one at BSc level and and one at MSc level) and lecturer in an additional course. Coordinator of GRS fieldwork activity. • Coordination of research group including PhD students, several postdoctoral researchers, MSc students. • PI of the Harmony ESA Earth Explorer 10 Mission candidate. • PI of Dutch Knowledge Network on small Radar Instruments and Applications (NL-RIA)
2009 - 2016	**Group Leader**, SAR Missions, Radar Concepts Department, Microwaves and Radar Institute, German Aerospace Center (DLR), Oberpfaffenhofen The group concentrates on studying the end-to-end performance of future SAR missions and in the development of new mission concepts. Two main pillars of these activities are:

Responsibilities and main activities	• The development of a wide range of generic and mission-specific tools for end-to-end mission performance analysis. • Design, planification and analysis of experimental acquisitions using the TerraSAR-X and TanDEM-X satellites, in order to demonstrate novel observation concepts. • Supervise and coordinate group activities (currently 7 scientists). • Supervision of undergraduate, M.S., and Ph.D. theses. • Preparation of proposals to obtain competitive funding. • Technical lead of strategical externally funded projects.
2006 – 2009	***Ramon y Cajal* Researcher**, Signal Theory and Communications Department, Universitat Politècnica de Catalunya, Barcelona. Integrated in the Active Remote Sensing group of Remote Sensing Laboratory.
Responsibilities and main activities	• Teaching several undergraduate-level courses in the Telecommunications Engineering Curriculum. • Supervision of graduate and undergraduate students. • Lead research and development of Bistatic Synthetic Aperture Radar (SAR) sensors using existing orbital SAR systems (ERS-2. ENVISAT, TerraSAR-X) as transmitters of opportunity and self-developed ground based receivers. Study of cross and along track bistatic InSAR applications and of bistatic polarimetry. • Research in advanced digital beamforming and SAR focusing algorithms based on adaptive spectral estimation techniques (Capon and APES). • Support research in the field of differential SAR interferometry.
2004 - 2006	**Lecturer**, Department of Telecommunications and Systems Engineering, Universitat Autònoma de Barcelona (UAB).
Responsibilities and main activities	• Coordinator and teacher of several undergraduate-level courses in the Telecommunications Engineering Curriculum. • Preparation of course syllabus and course material for new courses. • Supervision of senior project and M.S. theses • Research in spectral analysis techniques applied to radar imaging.
Oct. 2003 – Jul. 2004	**Research Scientist**, Starlab Barcelona
Responsibilities and main activities	• Lead development of GNSS-R systems for oceanographic applications (altimetry and sea state determination). • Preparation of proposals to obtain competitive funding.
1999 – 2003	**Research Assistant**, Microwave Remote Sensing Laboratory (MIRSL), University of Massachusetss (UMass), Amherst
Responsibilities and main activities	• Development of the Turbulent Eddy Profiler hardware (RF, data acquisition) and processing software (beamforming, system calibration, Doppler moments estimation). • Integration a SODAR system (an acoustic version of a Radar) with TEP to implement a Radio Acoustic Sounding System (RASS). • Participation and coordination activities in several multidisciplinary field experiments and performed the scientific analysis of Boundary Layer radar data.

TEACHING EXPERIENCE

2016 - present	**Associate Professor, Delft University of Technology** • Signals and Systems with Python (Q1 ’16, ’17, ’18, ’19, ’20). 2nd year BS course on Signals and Systems. Role: course responsible and lecturer. • Geodesy and Natural Hazards (Q4 ’18, ’19, ’20) M.S. course focused on radar remote sensing. Role: course responsible and lecturer. • Geoscience and Remote Sensing Fieldwork (Q4, ’17, ’18,’19, ’20). Practical *course,* where students learn to plan, execute and analyze geodetic measurements. Role: part of faculty team, coordinator in 2019-2020.
2010 - 2015	**Group Leader, German Aerospace Center** • Lecturer in ESA organized introductory courses on Synthetic Aperture Radar applications (Poland, 2010; Hungary; 2011; Slovenia, 2015). • Lecturer at training courses on Synthetic Aperture Radar systems for ESA engineers (ESA-ESTEC, 2012 and 2014). Tutorials on Synthetic Aperture Radar at IGARSS 2012 and EUSAR 2014.
2006 – 2009	**Ramon y Cajal Researcher, Universitat Politècnica de Catalunya (UPC).** • Transmiters and Receivers (Fall ’06, ’07) Third year course on Radio Frequency transmitters and receivers (RF front-end architectures; thermal noise; Noise Figure; Friis equation; distortion; Phase Locked Loops, indirect frequency synthesizers, phase noise, etc. • Radiation and guided waves (Fall ’08, Spring ‘09) Third year course covering Electromagnetic Waves, Propagation, transmission in wave-guides and transmission lines, impedance matching, antenna parameters, link budget, etc. • RF and Optical Systems (Fall ’06, Spring ’07, Fall ‘07) Second year laboratory course on characterization of radio frequency and optical communication systems.
2004 – 2006	**Lecturer, Universitat Autònoma de Barcelona (UAB).** • Analog Communications (Fall ’04, ’05) A second year one-semester course on signal theory applied to telecommunications covering: continuous system properties, LTI systems, frequency (Fourier) domain analysis, amplitude and phase modulations, etc. • Digital Signal Processing (Fall ’04, ’05) A second year one-semester course on digital signal processing covering: discrete signals and systems, z-transform, Discrete Fourier Transform, FIR and IIR systems, basic filter design techniques, etc. • Data transmission (Spring ’05) A new fourth-year one semester course introducing queing theory, information theory and coding (error correction) in data transmission.

DIRECTION OF PH.D. THESES

Mengshi Yang, Delft University of Technology
Year of dissertation defense: September 2020
Title: From Radar to Reality: Adding Attributes To Time Series InSAR
Role: co-directed with Prof. Ramon Hanssen

Tina Nikaein, Delft University of Technology
Year of dissertation defense: November 2022 (planned)
Title (working): Monitoring integrated crop-livestock systems through remote sensing and precision agriculture for more sustainable production -Towards Low Carbon Agriculture
Role: main supervisor, co-directed with Prof. Ramon Hanssen

Yan Yuan, Delft University of Technology
Year of dissertation defense: June 2024 (planned)
Multiple Scattering Mechanisms in Synthetic Aperture Radar Interferometry Role: main supervisor, co-directed with Prof. Ramon Hanssen

Juan Carlos Merlano, Universitat Politècnica de Catalunya
Year of dissertation defense: 2013
Title: Hardware developments for Bistatic SAR: synchronization and multisensor expansion
Comments: co-directed with Prof. Jordi Mallorquí

Sergi Duque Biarge, Universitat Politècnica de Catalunya
Year of dissertation defense: pending
Title: Bistatic Interferometry
Comments: co-directed with Prof. Jordi Mallorquí

Visiting Ph.D. Students

Student: Hao Zhang, Delft University of Technology
University of origin: Wuhan University
Visiting period: September 2017 – August 2019
Year of dissertation defense: Fall 2020
Topic: Persistent Scatterer Densification through the use of super-resolution re-processing algorithms.

MEMBERSHIPS AND COMMITTEES

Scientific Journals	• Associate Editor for IEEE Transactions on Geoscience and Remote Sensing (TGRS) (2011 – present).

	• Chair (PI) of Mission Advisory Group for Harmony mission (January 2019 – present) • Member of Mission Advisory Group for SKIM (Sea surface KInematics Multiscale monitoring) mission (2018 - 2018) • Member of Science Expert Group for ESA's SAOCOM-CS mission (2015 – 2017).
Technical Committees	• Member of Technical Program Committees or Scientific Committees of o International Geoscience and Remote Sensing Symposiums (IGARSS) o European SAR conference (EUSAR 2012, 2014) o Advanced RF Sensors and Remote Sensing Instruments (ARSI'14). o ESA EO Convoy Workshop, 2013 o ESA Ocean Surface Currents, 2015
Other	Senior Member, IEEE (Geoscience and Remote Sensing Society)

PRIZES, DISTINCTIONS AND ACCREDITATIONS

Gessellschaft von Freunden des DLR	Otto-Lilienthal-Forschungssemester, 2015
IEEE GRSS, 2009	Top Reviewer, IEEE Transactions on Geoscience and Remote Sensing
Universitat Politècnica de Catalunya, 2010	Teaching Quality distinction for „Radiation and guided waves" course.
Catalan University Quality Assurance Agency (AQU), July 2009	Tenured assistant professor accreditation. This AQU-issued accreditation is a prerequisite to occupy tenured assistant professor position at Catalan Universities.
Spanish Ministry of Science and Education, 2006	*Ramon y Cajal* research grant.
Catalan University Quality Assurance Agency (AQU), November 2004	Tenure-track lecturer accreditation. This AQU-issued accreditation is a prerequisite to occupy a lecturer position at Catalan Universities.
University of California, Irvine, 1997	*Balsells Fellowship*

LANGUAGES

Native speaker:	Spanish, Catalan
Fluent:	English, German, Dutch

EXTERNALLY FUNDED RESEARCH PROJECTS

2019 – 2020	Alticubes (Study into the potential of a cubesat altimeter constellation) Responsibilities: Project Lead Funding Agency: ESA Amount funded: 75k€
2019 – 2020	STEREOID (Harmony) PI Supporting Activities Responsibilities: PI Funding Agency: NSO Amount funded: 200k€
2019 – 2020	STEREOID Phase-0 Science and Requirement Consolidation Study – Ocean and Sea Ice Responsibilities: Project lead, Performance analysis, mission consolidation. Funding Agency: ESA Total/TU Delft funding: 260k€/70k€
2019 – 2020	STEREOID Phase-0 Science and Requirement Consolidation Study – Land Ice Responsibilities: Performance models and analysis, mission consolidation. Funding Agency: ESA Total/TU Delft funding: 120k€/24k€ Prime Contractor: ENVEO
2018 – 2020	SATROSS+: Extension of performance analysis to land and cryosphere applications. Funding Agency: ESA Total/TU Delft funding: 120k€/72k€ Prime Contractor: NORCE
2018 – 2022	Exploitation of phase inconsistencies in SAR interferometric triplets Responsibilities: PI. Funding Agency: NSO/NWO Amount funded: 240k€
2018 – 2021	Dutch network on small spaceborne radar instruments and applications (NL-RIA) Responsibilities: PI. Funding Agency: NSO/NWO Amount founded: 750k€
2018 - 2019	Ka-band SAR Application Consolidation and Requirement Definition Study (KaBandSAR). Responsibilities: Project lead, E2E performance. Funding Agency: ESA Total/TU Delft funding: 250k€/62k€
2017 – 2018	Scientific Assessment of TSCV Retrievals from Stereo-SAR (SATRoSS). Responsibilities: E2E system performance Funding Agency: ESA Total/TU Delft funding: 250k€/52k€ Prime Contractor: NORUT
2014 – 2015	BIOMASS L2 Processor Requirements Study, European Space Agency Prime Contractor: DLR Total/DLR Funding: 200k€ / 70k€ Study to define high-level requirements and processing steps for BIOMASS L2 and L3 processing chains. Responsibilities: Proposal preparation and project lead.
2015	SAOCOM-CS InSAR Performance, European Space Agency. Prime Contractor: DLR Total/DLR Funding: 200k€ / 200k€ Study on interferometric and tomographic performance and derived system requirements for the SAOCOM-CS mission. Responsibilities: Proposal preparation and project lead.
2014–2015	HRWS Applications study, European Space Agency. Prime Contractor: DLR Total/DLR Funding: 350k€/200k€ ESA funded activity to study the performance and benefits at application level of the Sentinel-1 follow-on C-band SAR systems. Responsibilities: Proposal preparation and project lead.
2014	SAOCOM-CS CDF, European Space Agency Prime Contractor: DLR Total/DLR Funding: 100k€/100k€ Study on applications and mission analysis for a bistatic companion satellite to the Argentinian SAOCOM mission. Responsibilities: Proposal preparation and project lead.

2014–2015	Ocean Surface Currents Mission Study, European Space Agency. Prime Contractor: OHB Systems Total/DLR Funding: 200k€/70k€ ESA funded project to develop a mission concept for the measurement of ocean surface velocities using along-track SAR interferometry. Responsibilities: Proposal preparation and technical supervision.
2012 - 2014	MACSAR, European Space Agency. Prime Contractor: DLR Total/DLR Funding: 200k€/137k€ ESA funded activity to study GMTI and ATI (for ocean currents) performance of the multi-channel Sentinel-1 follow-on C-band SAR systems. Responsibilities: Proposal preparation and technical supervision.
2011 – 2013	Ka-Band InSAR, European Space Agency. Prime Contractor: Astrium GmbH Total/DLR Funding: 250k€/80k€ ESA funded project to study possible Ka-Band interferometric mission concepts. Responsibilities: DLR Proposal preparation and DLR project lead.
2010 – 2011	BEES (BIOMASS End-to-End Mission Simulator), European Space Agency. Prime Contractor: DLR Total/DLR Funding: 550k€/300k€ Activity to develop and integrate an End-to-End simulator for the BIOMASS mission. Responsibilities: Proposal preparation and project lead.
2009 – 2010	SIGNAL (SAR for Ice, Glacier aNd globAL dynamics), DLR (Agency) Prime Contractor: DLR Total Funding: 100k€ German funded project in preparation for an ESA Earth Explorer Opportunity Mission proposal. Responsibilities: Mission analysis.
2008 – 2009	Study of SAR Systems for PAZ/SEOSAR mission, CASA-ECE (Astrium Spain) Prime Contractor: UPC Total Funding: 125k€ Responsible for radiometric error budget analysis.
2009 – 2013	Terahertz Technology for Electromagnetic Sensing Applications, Spanish Ministry of Science and Innovation Prime Contractor: UPC Total/UPC Funding: 3.5 M€ / ca. 500 k€ Responsibilities: radar systems.
2008	SARMISP (SAR systems on Small Platforms), Catalan Cartographic Institute (ICC). Prime Contractor: UPC Total Funding: 30k€ Responsible for SAR system analysis
2008	SimpleMAT-P: Hardware development of a prototype of Simplified Multiple Active Transmitter (MAT) for subsidence monitoring with orbital SAR, Altamira Informacion Prime Contractor: UPC UPC Funding: 15 k€ Responsibilities: co-PI
2007 – 2008	MAT-Phase II: Subsystem design, simulation and evaluation of a Multiple Active Transmitter (MAT) for subsidence monitoring with orbital SAR, Altamira Informacion Prime Contractor: UPC UPC Funding: 48 k€ Responsibilities: co-PI
2007	MAT-F: Feasibility study for the use of a Multiple Active Transmitter (MAT) for subsidence monitoring with orbital SAR, Altamira Informacion Prime Contractor: UPC UPC Funding: 18 k€ Responsibilities: co-PI
2007 - 2010	Bistatic Polarimetry with Synthetic Aperture Radars, Spanish Ministry of Science. Prime Contractor: UPC Total Funding (est.): 100k€ Responsible for the development of the instrument and bistatic SAR processing
2006	COPS: Cooperative EO Sensors (Phase I), European Space Agency Prime Contractor: UPC Total Funding: 15 k€ Project participant.
2006 - 2009	Bistatic interferometric radar systems for the detection of terrain movements in urban áreas, Spanish Ministry of Science. Five year Ramon y Cajal personal grant.

2004 - 2006	Cross-layer optimization of Broadband Satellite Systems, Spanish Ministry of Science and Education. Participated in proposal preparation and project execution.
2003 - 2004	PARIS Gamma Phase-2, European Space Agency. PARIS Airborne Demonstrator design and development
2003–2004	SENSATION (Advanced Sensor Development for Attention, Stress, Vigilance and Wakefulness/Sleep Monitoring), EU-FP6 program. Responsible for several work-packages
2003	VTMX (Vertical Transport and Mixing Experiment) Extenssion, US Department of Energy. Prime Contractor: UMass UMass Funding: ca. 98 k$ Responsibilities: Proposal preparation (left institution before project execution).
2000 - 2003	VTMX (Vertical Transport and Mixing Experiment), US Department of Energy. Prime Contractor: UMass UMass Funding: ca. 400 k$ Responsibilities: Coordinated UMass participation in the VTMX field campaign in Salt Lake City
1999 - 2002	CASES'99 (Cooperative Atmosphere-Surface Exchange Study), US Army Research Office. Prime Contractor: UMass Total Funding: ca. 400 k$ Execution UMass participation in field campaign and data analysis.

2. Publications and Patents

Publications overview

Journal papers	43
Patents	4 granted / 2 pending
Book Chapters	1
Conference papers	> 100
h–index (Scopus/Google)	21/24

Publications in Peer Reviewed Journals

[1] Y. Li, P. Hoogeboom, P. L. Dekker, S.-H. Mok, J. Guo, and C. Buck, "CubeSat Altimeter Constellation Systems: Performance Analysis and Methodology," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 60, pp. 1–19, 2022, doi: 10.1109/TGRS.2021.3100850.
[2] Y. Li, P. L. Dekker, G. Mulder, L. Iannini, and P. Prats-Iraola, "Differential Tropospheric Delay Estimation by Simultaneous Multi-Angle Repeat-Pass InSAR," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 60, pp. 1–18, 2022, doi: 10.1109/TGRS.2021.3105007.
[3] N. Caldarella *et al.*, "Retrieval of Wind- and Total Surface Current Vectors Using Experimental Bidirectional Along-Track Interferometric TanDEM-X Data," *IEEE Transactions on Geoscience and Remote Sensing*, pp. 1–1, 2022, doi: 10.1109/TGRS.2022.3147490.
[4] M. Kleinherenbrink *et al.*, "Estimating instantaneous sea-ice dynamics from space using the bi-static radar measurements of Earth Explorer 10 candidate Harmony," *Cryosphere*, vol. 15, no. 7, Art. no. 7, Jul. 2021.
[5] T. Nikaein, L. Iannini, R. A. Molijn, and P. Lopez-Dekker, "On the Value of Sentinel-1 InSAR Coherence Time-Series for Vegetation Classification," *Remote Sensing*, vol. 13, no. 16, Art. no. 16, Jan. 2021, doi: 10.3390/rs13163300.
[6] H. Zhang, P. López-Dekker, and F. van Leijen, "Persistent Scatterer Densification Through Capon-Based SAR Reprocessing for Sentinel-1 TOPS Data," *IEEE Geoscience and Remote Sensing Letters*, pp. 1–5, 2021, doi: 10.1109/LGRS.2020.3048370.
[7] Y. Li, P. Hoogeboom, P. L. Dekker, S.-H. Mok, J. Guo, and C. Buck, "CubeSat Altimeter Constellation Systems: Performance Analysis and Methodology," *IEEE Transactions on Geoscience and Remote Sensing*, pp. 1–19, 2021, doi: 10.1109/TGRS.2021.3100850.
[8] Y. Li, P. L. Dekker, G. Mulder, L. Iannini, and P. Prats-Iraola, "Differential Tropospheric Delay Estimation by Simultaneous Multi-Angle Repeat-Pass InSAR," *IEEE Transactions on Geoscience and Remote Sensing*, pp. 1–18, 2021, doi: 10.1109/TGRS.2021.3105007.
[9] J. Matar, M. Rodriguez-Cassola, G. Krieger, P. López-Dekker, and A. Moreira, "MEO SAR: System Concepts and Analysis," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 58, no. 2, pp. 1313–1324, Feb. 2020, doi: 10.1109/TGRS.2019.2945875.
[10] H. Zhang, P. López-Dekker, and S. Li, "Combination of Super-Resolution PSI and Traditional PSI by Identification of Homogeneous Areas," *IEEE Access*, vol. 8, pp. 181640–181649, 2020, doi: 10.1109/ACCESS.2020.3028491.
[11] O. Dogan, F. Uysal, and P. L. Dekker, "Unambiguous Recovery of Multistatic SAR Data for Nonzero Cross Track Baseline Case," *IEEE Geoscience and Remote Sensing Letters*, pp. 1–5, 2020, doi: 10.1109/LGRS.2020.3021759.
[12] F. De Zan, F. Rocca, A. Ferretti, P. Lopez-Dekker, and M. Eineder, "Letters Comments on ``Influence of the Statistical Properties of Phase and Intensity on Closure Phase'','' *IEEE Trans. Geosci. Remote Sensing*, pp. 1–2, 2020, doi: 10.1109/TGRS.2020.3021130.

[13] M. Yang, P. López-Dekker, P. Dheenathayalan, M. Liao, and R. F. Hanssen, "On the value of corner reflectors and surface models in InSAR precise point positioning," *ISPRS Journal of Photogrammetry and Remote Sensing*, vol. 158, pp. 113–122, Dec. 2019, doi: 10.1016/j.isprsjprs.2019.10.006.
[14] H. Zhang and P. López-Dekker, "Persistent Scatterer Densification Through the Application of Capon- and APES-Based SAR Reprocessing Algorithms," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 57, no. 10, pp. 7521–7533, Oct. 2019, doi: 10.1109/TGRS.2019.2913905.
[15] C. Gommenginger *et al.*, "SEASTAR: A Mission to Study Ocean Submesoscale Dynamics and Small-Scale Atmosphere-Ocean Processes in Coastal, Shelf and Polar Seas," *Frontiers in Marine Science*, vol. 6, no. 457, pp. 1–7, Aug. 2019, doi: 10.3389/fmars.2019.00457.
[16] M. Yang, P. López-Dekker, P. Dheenathayalan, F. Biljecki, M. Liao, and R. F. Hanssen, "Linking Persistent Scatterers to the Built Environment Using Ray Tracing on Urban Models," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 57, no. 8, pp. 5764–5776, Aug. 2019, doi: 10.1109/TGRS.2019.2901904.
[17] F. Ardhuin *et al.*, "SKIM, a Candidate Satellite Mission Exploring Global Ocean Currents and Waves," *Front. Mar. Sci.*, vol. 6, 2019, doi: 10.3389/fmars.2019.00209.
[18] R. Molijn *et al.*, "Vegetation Characterization through the Use of Precipitation-Affected SAR Signals," *Remote Sensing*, vol. 10, no. 10, p. 1647, Oct. 2018, doi: 10.3390/rs10101647.
[19] F. Bordoni, P. López-Dekker, and G. Krieger, "Beam-Switch Wide-Swath Mode for Interferometrically Compatible Single-Pol and Quad-Pol SAR Products," *IEEE Geoscience and Remote Sensing Letters*, vol. 15, no. 10, pp. 1565–1569, Oct. 2018, doi: 10.1109/LGRS.2018.2849269.
[20] P. Prats-Iraola, P. Lopez-Dekker, F. D. Zan, N. Yagüe-Martínez, M. Zonno, and M. Rodriguez-Cassola, "Performance of 3-D Surface Deformation Estimation for Simultaneous Squinted SAR Acquisitions," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 56, no. 4, pp. 2147–2158, Apr. 2018, doi: 10.1109/TGRS.2017.2776140.
[21] S. Wollstadt, P. López-Dekker, F. D. Zan, and M. Younis, "Design Principles and Considerations for Spaceborne ATI SAR-Based Observations of Ocean Surface Velocity Vectors," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 55, no. 8, pp. 4500–4519, Aug. 2017, doi: 10.1109/TGRS.2017.2692880.
[22] J. Mittermayer, T. Kraus, P. López-Dekker, P. Prats-Iraola, G. Krieger, and A. Moreira, "Wrapped Staring Spotlight SAR," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 54, no. 10, pp. 5745–5764, Oct. 2016, doi: 10.1109/TGRS.2016.2571340.
[23] P. López-Dekker, M. Rodriguez-Cassola, F. D. Zan, G. Krieger, and A. Moreira, "Correlating Synthetic Aperture Radar (CoSAR)," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 54, no. 4, pp. 2268–2284, Apr. 2016, doi: 10.1109/TGRS.2015.2498707.
[24] F. D. Zan, M. Zonno, and P. López-Dekker, "Phase Inconsistencies and Multiple Scattering in SAR Interferometry," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 53, no. 12, pp. 6608–6616, Dec. 2015, doi: 10.1109/TGRS.2015.2444431.
[25] P. Prats-Iraola *et al.*, "Role of the Orbital Tube in Interferometric Spaceborne SAR Missions," *IEEE Geoscience and Remote Sensing Letters*, vol. 12, no. 7, pp. 1486–1490, Jul. 2015, doi: 10.1109/LGRS.2015.2409885.
[26] S. Bertl, P. L. Dekker, M. Younis, and G. Krieger, "Along-track SAR interferometry using a single reflector antenna," *IET Radar, Sonar & Navigation*, 2015, Accessed: Sep. 15, 2015. [Online]. Available: http://digital-library.theiet.org/content/journals/10.1049/iet-rsn.2014.0413
[27] P. Prats-Iraola, M. Rodriguez-Cassola, F. De Zan, P. Lopez-Dekker, R. Scheiber, and A. Reigber, "Efficient Evaluation of Fourier-Based SAR Focusing Kernels," *IEEE Geoscience and Remote Sensing Letters*, vol. 11, no. 9, pp. 1489–1493, Sep. 2014, doi: 10.1109/LGRS.2013.2296371.

[28] R. Iglesias, J. J. Mallorqui, and P. Lopez-Dekker, "DInSAR Pixel Selection Based on Sublook Spectral Correlation Along Time," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 52, no. 7, pp. 3788–3799, Jul. 2014, doi: 10.1109/TGRS.2013.2276023.
[29] F. De Zan, A. Parizzi, P. Prats-Iraola, and P. Lopez-Dekker, "A SAR Interferometric Model for Soil Moisture," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 52, no. 1, pp. 418–425, 2014, doi: 10.1109/TGRS.2013.2241069.
[30] G. Krieger *et al.*, "TanDEM-X: A radar interferometer with two formation-flying satellites," *Acta Astronautica*, vol. 89, pp. 83–98, Aug. 2013, doi: 10.1016/j.actaastro.2013.03.008.
[31] J. Mittermayer, S. Wollstadt, P. Prats-Iraola, P. Lopez-Dekker, G. Krieger, and A. Moreira, "Bidirectional SAR Imaging Mode," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 51, no. 1, pp. 601–614, Jan. 2013, doi: 10.1109/TGRS.2012.2202669.
[32] G. Farquharson, P. Lopez-Dekker, and S. J. Frasier, "Contrast-Based Phase Calibration for Remote Sensing Systems With Digital Beamforming Antennas," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 51, no. 3, pp. 1744–1754, 2013, doi: 10.1109/TGRS.2012.2205695.
[33] F. De Zan, G. Krieger, and P. Lopez-Dekker, "On Some Spectral Properties of TanDEM-X Interferograms Over Forested Areas," *IEEE Geoscience and Remote Sensing Letters*, vol. 10, no. 1, pp. 71–75, 2013, doi: 10.1109/LGRS.2012.2193114.
[34 J. C. Merlano-Duncan, J. J. Mallorqui, and P. López-Dekker, "Carrier phase synchronisation scheme for very long baseline coherent arrays," *Electronics Letters*, vol. 48, no. 15, pp. 950–951, Jul. 2012, doi: 10.1049/el.2012.1896.
[35] E. Makhoul, A. Broquetas, F. Lopez-Dekker, J. Closa, and P. Saameno, "Evaluation of the Internal Calibration Methodologies for Spaceborne Synthetic Aperture Radars with Active Phased Array Antennas," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 5, no. 3, pp. 909–918, Jun. 2012, doi: 10.1109/JSTARS.2012.2199087.
[36] M. Rodriguez-Cassola *et al.*, "First Bistatic Spaceborne SAR Experiments With TanDEM-X," *IEEE Geoscience and Remote Sensing Letters*, vol. 9, no. 1, pp. 33–37, Jan. 2012, doi: 10.1109/LGRS.2011.2158984.
[37] P. Lopez-Dekker, P. Prats, F. De Zan, D. Schulze, G. Krieger, and A. Moreira, "TanDEM-X First DEM Acquisition: A Crossing Orbit Experiment," *IEEE Geoscience and Remote Sensing Letters*, vol. 8, no. 5, pp. 943–947, Sep. 2011, doi: 10.1109/LGRS.2011.2127444.
[38] F. De Zan and P. López-Dekker, "SAR Image Stacking for the Exploitation of Long-Term Coherent Targets," *IEEE Geoscience and Remote Sensing Letters*, vol. 8, no. 3, pp. 502–506, May 2011, doi: 10.1109/LGRS.2010.2089494.
[39] M. Tello Alonso, P. López-Dekker, and J. J. Mallorquí, "A Novel Strategy for Radar Imaging Based on Compressive Sensing," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 48, no. 12, pp. 4285–4295, Dec. 2010, doi: 10.1109/TGRS.2010.2051231.
[40] S. Duque, P. Lopez-Dekker, and J. J. Mallorqui, "Single-Pass Bistatic SAR Interferometry Using Fixed-Receiver Configurations: Theory and Experimental Validation," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 48, no. 6, pp. 2740–2749, Jun. 2010, doi: 10.1109/TGRS.2010.2041063.
[41] P. Lopez-Dekker and J. J. Mallorqui, "Capon- and APES-Based SAR Processing: Performance and Practical Considerations," *IEEE Trans. Geosci. Remote Sensing*, vol. 48, no. 5, pp. 2388–2402, May 2010, doi: 10.1109/TGRS.2009.2038902.
[42] P. Lopez-Dekker, J. J. Mallorqui, P. Serra-Morales, and J. Sanz-Marcos, "Phase Synchronization and Doppler Centroid Estimation in Fixed Receiver Bistatic SAR Systems," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 46, no. 11, pp. 3459–3471, Nov. 2008, doi: 10.1109/TGRS.2008.923322.
[43] B. L. Cheong *et al.*, "Effects of Wind Field Inhomogeneities on Doppler Beam Swinging Revealed by an Imaging Radar," *Journal of Atmospheric and Oceanic Technology*, vol. 25, pp. 1414–1422, Aug. 2008, doi: 10.1175/2007JTECHA969.1.

[44] J. Sanz-Marcos, P. Lopez-Dekker, J. J. Mallorqui, A. Aguasca, and P. Prats, "SABRINA: A SAR Bistatic Receiver for Interferometric Applications," *Geoscience and Remote Sensing Letters, IEEE*, vol. 4, no. 2, pp. 307–311, 2007, doi: 10.1109/LGRS.2007.894144.
[45] B. L. Cheong, M. W. Hoffman, R. D. Palmer, S. J. Frasier, and F. J. López-Dekker, "Phased-Array Design for Biological Clutter Rejection: Simulation and Experimental Validation," *Journal of Atmospheric and Oceanic Technology*, vol. 23, pp. 585–598, Apr. 2006, doi: 10.1175/JTECH1867.1.
[46] R. D. Palmer, B. L. Cheong, M. W. Hoffman, S. J. Frasier, and F. J. López-Dekker, "Observations of the Small-Scale Variability of Precipitation Using an Imaging Radar," *Journal of Atmospheric and Oceanic Technology*, vol. 22, pp. 1122–1137, Aug. 2005, doi: 10.1175/JTECH1775.1.
[47] F. Soulat, M. Caparrini, O. Germain, P. Lopez-Dekker, M. Taani, and G. Ruffini, "Sea state monitoring using coastal GNSS-R," *Geophys. Res. Lett.*, vol. 31, p. 4 PP., Nov. 2004, doi: 200410.1029/2004GL020680.
[48] B. L. Cheong, M. W. Hoffman, R. D. Palmer, S. J. Frasier, and F. J. López-Dekker, "Pulse pair beamforming and the effects of reflectivity field variations on imaging radars," *Radio Sci.*, vol. 39, p. 13 PP., Jun. 2004, doi: 200410.1029/2002RS002843.
[49] P. Lopez Dekker and S. J. Frasier, "Radio Acoustic Sounding with a UHF Volume Imaging Radar," *J. Atmos. Oceanic Technol.*, vol. 21, no. 5, pp. 766–776, 2004, doi: doi: 10.1175/1520-0426(2004)021<0766:RASWAU>2.0.CO;2.
[50] A. Camps, F. Torres, P. Lopez-Dekker, and S. J. Frasier, "Redundant space calibration of hexagonal and Y-shaped beamforming radars and interferometric radiometers," *International Journal of Remote Sensing*, vol. 24, pp. 5183–5196, Jan. 2003, doi: 10.1080/0143116031000070337.

Book Chapters

P. López-Dekker, G. Krieger, and A. Moreira, "Multistatic Radar Systems," in Distributed Space Missions for Earth System Monitoring, vol. 31, M. D'Errico, Ed. Springer New York, 2013, pp. 61–122.

Patents

1. Synthetic aperture radar method, EP3060939B1, Marwan Younis, Federica Bordoni, Gerhard Krieger, Francisco Lopez-Dekker and Francesco De Zan
2. Interferometric SAR system, EP2722686B1, Francisco Lopez-Dekker, Marwan Younis, Gerhard Krieger, Christoph Schaefer
3. Method for operating a radar system with synthetic aperture in the transmission/reception mode, EP2775317B1, Francisco Lopez-Dekker, Sebastian Bertl, Marwan Younis, Gerhard Krieger
4. Synthetik-Apertur-Radarverfahren und Synthetik-Apertur-Radarvorrichtung, DE102016208899B3, Felipe Queiroz de Almeida, Marwan YounisGerhard Krieger, Francisco Lopez-Dekker, Alberto Moreira
5. Synthetik-apertur-radarverfahren und synthetik-apertur-radarsystem, EP3425422A1 (pending), Mariantonietta Zonno, Marc Rodriguez-Cassola, Gerhard Krieger, Alberto Moreira, Francisco Lopez-Dekker

6. Method for producing an earth observation image of a region by means of a radar having synthetic aperture, EP3465263A1 (pending), Josef Mittermayer, Paco López-Dekker, Pau Prats-Iraola, Thomas Kraus, Gerhard Krieger, Alberto Moreira

CONFERENCE PAPERS (SELECTION)

[1] H. Rott *et al.*, "SESAME: A single-pass interferometric SEntinel-1 companion SAR mission for monitoring GEO- and biosphere dynamics," in *2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2017, pp. 107–110.
[2] M. Rodriguez-Cassola *et al.*, "End-to-end performance analysis of companion SAR missions," in *2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2017, pp. 153–156.
[3] P. Prats-Iraola, M. Rodriguez-Cassola, P. Lopez-Dekker, M. Zonno, N. Yague-Martinez, and M. Nannini, "Technical aspects in SAR image formation and interferometric processing of companion satellite SAR missions," in *2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2017, pp. 145–148.
[4] P. López-Dekker *et al.*, "Companion SAR constellations for single-pass interferometric applications: The SESAME mission," in *2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2017, pp. 119–122.
[5] P. López-Dekker, P. Prats, M. Rodríguez-Cassola, and B. C. Domínguez, "Companion SAR missions: Scientific rationale and technical challenges," in *2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2017, pp. 141–144.
[6] F. Bordoni, F. López-Dekker, and M. J. Sanjuan-Ferrer, "Beam-Switch Wide Swath mode for interferometrically compatible products of the post-sentinel HRWS SAR system," in *2017 18th International Radar Symposium (IRS)*, 2017, pp. 1–6.
[7] M. Zonno, P. Lopez-Dekker, and R. E. Danielson, "On the exploitation of polarimetric ratio for oil spill detection," in *Proceedings of EUSAR 2016: 11th European Conference on Synthetic Aperture Radar*, 2016, pp. 1–6.
[8] P. Lopez-Dekker, F. Q. d Almeida, M. Rodriguez-Cassola, P. Prats, O. Ponce, and M. Younis, "End-to-end simulation of reflector based DBF SAR Systems," in *Proceedings of EUSAR 2016: 11th European Conference on Synthetic Aperture Radar*, 2016, pp. 1–5.
[9] S. Wollstadt *et al.*, "A KU-band SAR mission concept for ocean surface current measurement using dual beam ATI and hybrid polarization," in *2015 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2015, pp. 1219–1222.
[10] M. Younis, P. Lopez-Dekker, and G. Krieger, "Signal and noise considerations in multi-channel SAR," in *Radar Symposium (IRS), 2015 16th International*, 2015, pp. 434–439.
[11] M. Younis, P. Lopez-Dekker, and G. Krieger, "MIMO SAR Operation Modes and Techniques," in *EUSAR 2014; 10th European Conference on Synthetic Aperture Radar; Proceedings of*, 2014, pp. 1–3.
[12] P. Lopez-Dekker *et al.*, "Experimental Bidirectional SAR ATI acquisitions of the ocean surface with TanDEM-X," in *EUSAR 2014; 10th European Conference on Synthetic Aperture Radar; Proceedings of*, 2014, pp. 1–4.
[13] P. Lopez-Dekker, M. Rodriguez-Cassola, F. De Zan, and G. Krieger, "Imaging ocean surface statistics using Geosynchronous Correlating SAR (CoSAR)," in *EUSAR 2014; 10th European Conference on Synthetic Aperture Radar; Proceedings of*, 2014, pp. 1–4.
[14] F. De Zan, M. Zonno, and P. Lopez-Dekker, "Lack of triangularity in SAR interferometric phases," in *EUSAR 2014; 10th European Conference on Synthetic Aperture Radar; Proceedings of*, 2014, pp. 1–4.

[15] S. Bertl, P. Lopez-Dekker, M. Younis, and G. Krieger, “Equivalency of Multiple Beams and Multiple Phase Centres for Digital Beamforming SAR Systems,” in *EUSAR 2014; 10th European Conference on Synthetic Aperture Radar; Proceedings of*, 2014, pp. 1–4.
[16] S. Bertl, P. Lopez-Dekker, S. Wollstadt, and G. Krieger, “Demonstration of Digital Beamforming in Elevation for Spaceborne Synthetic Aperture Radar,” in *EUSAR 2014; 10th European Conference on Synthetic Aperture Radar; Proceedings of*, 2014, pp. 1–4.
[17] M. Younis, P. Lopez-Dekker, F. Bordoni, P. Laskowski, and G. Krieger, “Exploring the trade-space of MIMO SAR,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2013 IEEE International*, 2013, pp. 4455–4458.
[18] P. Lopez-Dekker, M. Younis, S. Bertl, and G. Krieger, “Instrument architecture, advanced digital beamforming techniques, and operation modes for an enhanced signal mission concept,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2013 IEEE International*, 2013, pp. 3475–3478.
[19] M. Younis, P. Lopez-Dekker, A. Patyuchenko, and G. Krieger, “Digital beamforming architecture and techniques for a spaceborne interferometric Ka-band mission,” in *2013 IEEE Radar Conference (RADAR)*, 2013, pp. 1–5.
[20] C. Schaefer and P. Lopez-Dekker, “Interferometric Ka-band SAR with DBF capability,” *Synthetic Aperture Radar, 2012. EUSAR. 9th European Conference on*, pp. 7–10, Apr. 2012.
[21] R. Iglesias, D. Monells, G. Centolanza, J. J. Mallorqui, and P. Lopez-Dekker, “A new approach to DInSAR pixel selection with spectral correlation along time between Sublooks,” *Synthetic Aperture Radar, 2012. EUSAR. 9th European Conference on*, pp. 665–668, Apr. 2012.
[22] M. Younis, P. Lopez-Dekker, A. Patyuchenko, C. Schaefer, and G. Krieger, “Advanced operation mode techniques for an interferometric Synthetic Aperture Radar,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International*, 2012, pp. 1614–1617.
[23] S. Wollstadt, P. Lopez-Dekker, P. Prats-Iraola, F. De Zan, T. Busche, and G. Krieger, “1 and 5 day differential InSAR under crossing orbits with TerraSAR-X,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International*, 2012, pp. 1868–1871.
[24] P. López-Dekker, M. Younis, J. A. Garcıa, T. Börner, and G. Krieger, “ADVANCED DIGITAL BEAMFORMING ARCHITECTURES AND OPERATION MODES FOR AN ENHANCED SIGNAL MISSION CONCEPT,” presented at the 1st Workshop on Ka-Band Earth Observation Radar missions KEO ’12, 2012.
[25] P. Lopez-Dekker *et al.*, “Biomass End-to-End mission performance assessment,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International*, 2012, pp. 1602–1605.
[26] P. Lopez-Dekker, F. De Zan, S. Wollstadt, P. Prats, and G. Krieger, “On the tomographic information in single pairs of crossing-orbits SAR acquisitions,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International*, 2012, pp. 7043–7046.
[27] J. A. Garcia *et al.*, “Monitoring the Petermann ice island with TanDEM-X,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International*, 2012, pp. 1912–1915.
[28] F. De Zan, G. Krieger, and P. Lopez-Dekker, “Observations and discussions of TanDEM-X interferogram spectra over rain forest,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International*, 2012, pp. 5554–5557.
[29] P. López-Dekker, T. Börner, M. Younis, and G. Krieger, “SIGNAL: A Ka-band Digital Beam-Forming SAR System Concept to Monitor Topography Variations of Ice Caps and Glaciers,” *Proceedings of Advanced RF Sensors and Remote Sensing Instruments (ARSI)*, pp. 1–10, Sep. 2011.
[30] P. Lopez-Dekker *et al.*, “Demonstration of SAR interferometry under crossing orbits using TerraSAR-X and TanDEM-X,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2011 IEEE International*, 2011, pp. 3472–3475.
[31] F. De Zan and P. Lopez-Dekker, “Coherent stacking of SAR images for efficient interferometric processing,” in *Geoscience and Remote Sensing Symposium (IGARSS), 2011 IEEE International*, 2011, pp. 1338–1340.

[32] P. López-Dekker *et al.*, “BIOMASS End-to-End Mission Performance Simulator,” presented at the Geoscience and Remote Sensing Symposium, Vancouver, 2011.
[33] P. Lopez-Dekker, P. Lopez-Dekker, S. Duque, J. C. Merlano, J. C. Rodriguez-Silva, and J. J. Mallorqui, “Fixed-Receiver Bistatic SAR Along-Track Interferometry: First Results,” in *2010 8th European Conference on Synthetic Aperture Radar (EUSAR)*, 2010, pp. 1–4.
[34] P. Lopez-Dekker and J. J. Mallorqui, “Capon/APES based SAR processing: Practical considerations,” in *Geoscience and Remote Sensing Symposium,2009 IEEE International,IGARSS 2009*, 2009, vol. 5, pp. V-168-V–171.
[35] M. Tello, P. Lopez-Dekker, and J. J. Mallorqui, “A Novel Strategy for Radar Imaging Based on Compressive Sensing,” in *Geoscience and Remote Sensing Symposium, 2008. IGARSS 2008. IEEE International*, 2008, vol. 2, pp. II-213-II–216.
[36] P. Lopez-Dekker, P. Serra-Morales, and J. J. Mallorqui, “Temporal Alignment and Doppler Centroid Estimation in Opportunistic Bistatic SAR Systems,” in *2008 7th European Conference on Synthetic Aperture Radar (EUSAR)*, 2008, pp. 1–4.
[37] P. Lopez-Dekker, J. J. Mallorqui, P. Serra-Morales, and J. Sanz-Marcos, “Phase and temporal synchronization in bistatic SAR systems using sources of opportunity,” in *Geoscience and Remote Sensing Symposium, 2007. IGARSS 2007. IEEE International*, 2007, pp. 97–100.
[38] P. Lopez-Dekker, J. C. Merlano, S. Duque, J. Sanz-Marcos, A. Aguasca, and J. J. Mallorqui, “Bistatic SAR interferometry using ENVISAT and a ground based receiver: Experimental results,” in *Geoscience and Remote Sensing Symposium, 2007. IGARSS 2007. IEEE International*, 2007, pp. 107–110.
[39] P. Lopez-Dekker, G. Farquharson, and S. Frasier, “A Comparison of Contrast Metrics for Contrast-based Phase Calibration of Digital Beamforming Remote Sensing Systems,” in *IEEE International Conference on Geoscience and Remote Sensing Symposium, 2006. IGARSS 2006*, 2006, pp. 3036–3039.
[40] P. Lopez Dekker, G. Farquharson, and S. J. Frasier, “Entropy based phase calibration of antenna arrays for digital beamforming remote sensing radars,” in *Proceedings of the IEEE Radar Conference, 2002*, 2002, pp. 445–452.
[41] P. L. Dekker, A. N. Bajaj, and S. F. Frasier, “Radar and acoustic observations during VTMX fieldcampaign,” *10thConference on Mountain Meteorology*, 2002.
[42] P. L. Dekker and S. J. Frasier, “Observations of the horizontal structure of the boundary layer with the turbulent eddy profiler,” 2002.