Gamma Software Publications

[1] U. Wegmüller and C. Magnard. *Capella InSAR and PSI test: Mexico City*. Technical report. Gamma Remote Sensing AG, 2025. (pdf).

[2] U. Wegmüller, C. Magnard and C. Werner. *China SV2 (SuperView Neo-2) X-band SAR support within GAMMA Software*. Technical report. Gamma Remote Sensing AG, 2025. (pdf).

[3] C. Magnard. *Presentation on the GAMMA / GEO / LAT Plugin for ArcGIS Pro*. 2024. (pdf).

[4] U. Wegmüller, C. Magnard and O. Frey. 'Assessment of Hongtu-1 multi-static X-band SAR constellation interferometry'. In: *Remote Sensing* 16.19 (2024), page 3600. DOI: 10.3390/rs16193600. (pdf).

[5] U. Wegmüller, C. Magnard, T. Strozzi, R. Caduff and N. Jones. 'Landslide velocity mapping using ALOS-2 PALSAR-2 ScanSAR data'. In: *Procedia Computer Science* 239 (2024), pages 2278–2285. DOI: 10.1016/j.procs.2024.06.419. (pdf).

[6] U. Wegmüller, C. Werner, O. Frey and C. Magnard. 'Estimation and compensation of the ionospheric path delay phase in PALSAR-3 and NISAR-L interferograms'. In: *Atmosphere* 15.6 (2024), page 632. DOI: 10.3390/atmos15060632. (pdf).

[7] U. Wegmüller and C. Magnard. *China Fucheng-1 SAR support within the GAMMA Software*. Technical report. Gamma Remote Sensing AG, 2024. (pdf).

[8] U. Wegmüller and C. Magnard. *China HT1 (Hongtu-1, also called PIESAT-1) SAR support within the GAMMA Software*. Technical report. Gamma Remote Sensing AG, 2024. (pdf).

[9] U. Wegmüller and C. Magnard. *SWOT KaRIn support within the GAMMA Software*. Technical report. Gamma Remote Sensing AG, 2024. (pdf).

[10] U. Wegmüller, C. Magnard and A. Wiesmann. *China LT1 (LuTan-1) SAR support within the GAMMA Software (updated for interferometric point target analysis)*. Technical report. Gamma Remote Sensing AG, 2024. (pdf).

[11] U. Wegmüller and C. Magnard. *ICEYE support within the GAMMA Software*. Technical report. Gamma Remote Sensing AG, 2023. (pdf).

[12] U. Wegmüller, C. Magnard and C. Werner. *China SV2 (SuperView Neo-2) X-band SAR support within the GAMMA Software*. Technical report. Gamma Remote Sensing AG, 2023. (pdf).

[13] U. Wegmüller, C. Magnard and C. Werner. *PALSAR-2 ScanSAR interferometry*. Technical report. Gamma Remote Sensing AG, 2022. (pdf).

[14] O. Cartus, U. Wegmüller, C. Magnard and C. Werner. *How to generate Sentinel-1 burst IDs*. Technical report. Gamma Remote Sensing AG, 2021. (pdf).

[15] C. Magnard, U. Wegmüller and C. Werner. 'Persistent scatterer interferometry in mountainous areas: advantages of working in map geometry'. In: *Procedia Computer Science*. 2020. DOI: 10.1016/j.procs.2021.01.123. (pdf).

[16] U. Wegmüller, C. Magnard, C. Werner, T. Strozzi, R. Caduff and A. Manconi. 'Methods to avoid being affected by non-zero closure phase in InSAR time series analysis in a multi-reference stack'. In: *Procedia Computer Science*. 2020. DOI: 10.1016/j.procs.2021.01.197. (pdf).

[17] U. Wegmüller, C. Werner, C. Magnard and A. Manconi. 'Co-seismic displacement vector retrieval for the Iran–Iraq earthquake using Sentinel-1'. In: *ESA Living Planet Symposium*. 2019. (pdf).

[18] U. Wegmüller, C. Magnard and C. Werner. *ASNARO-2 support within GAMMA Software*. Technical report. Gamma Remote Sensing AG, 2019. (pdf).

[19] U. Wegmüller, C. Werner, O. Frey, C. Magnard and T. Strozzi. 'Reformulating the split-spectrum method to facilitate the estimation and compensation of the ionospheric phase in SAR interferograms'. In: *Procedia Computer Science* 138 (2018), pages 318–325. DOI: 10.1016/j.procs.2018.10.045. (pdf).

[20] C. Magnard, C. Werner and U. Wegmüller. *Interpolation and resampling*. Technical report. Gamma Remote Sensing AG, 2017. (pdf).

[21] C. Magnard, C. Werner and U. Wegmüller. *Offset estimation programs*. Technical report. Gamma Remote Sensing AG, 2017. (pdf).

[22] M. Santoro, O. Cartus, A. Wiesmann, U. Wegmüller, J. Kellndorfer, C. Schmullius, P. Defourny, O. Arino, M. Engdahl and F. M. Seifert. 'Exploitation of Envisat ASAR and Sentinel-1 SAR data in support of carbon and water cycle studies'. In: *Big Data from Space (BiDS)*. 2017. DOI: 10.2760/383579. (pdf).

[23] U. Wegmüller, C. Werner, T. Strozzi, A. Wiesmann, O. Frey and M. Santoro. 'Sentinel-1 support in the GAMMA Software'. In: *Procedia Computer Science* 100 (2016), pages 1305–1312. DOI: 10.1016/j.procs.2016.09.246. (pdf).

[24] U. Wegmuller, C. Werner, A. Wiesmann, T. Strozzi, P. Kourkouli and O. Frey. 'Time-series analysis of Sentinel-1 interferometric wide swath data: techniques and challenges'. In: *2016 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*. IEEE, 2016. DOI: 10.1109/igarss.2016.7730012. (pdf).

[25] U. Wegmüller, M. Santoro, C. Werner and O. Cartus. 'On the estimation and interpretation of Sentinel-1 TOPS InSAR coherence'. In: *FRINGE 2015*. 2015. DOI: 10.5270/Fringe2015.89. (pdf).

[26] U. Wegmüller and C. Werner. 'Mitigation of thermal expansion phase in persistent scatterer interferometry in an urban environment'. In: *Joint Urban Remote Sensing Event (JURSE)*. 2015. DOI: 10.1109/jurse.2015.7120505. (pdf).

[27] U. Wegmüller, C. Werner, T. Strozzi, A. Wiesmann, O. Frey and M. Santoro. 'Sentinel-1 support in the GAMMA Software'. In: *FRINGE 2015*. 2015. DOI: 10.5270/Fringe2015.70. (pdf).

[28] U. Wegmüller. *Sentinel-1 GRD geometry test*. Technical report. Gamma Remote Sensing AG, 2015. (pdf).

[29] U. Wegmüller, C. Werner and A. Wiesmann. *ALOS-2 PALSAR-2 support in GAMMA Software*. Technical report. 2015. (pdf).

[30] M. Santoro and U. Wegmüller. 'Multi-temporal synthetic aperture radar metrics applied to map open water bodies'. In: *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* 7.8 (2014), pages 3225–3238. DOI: 10.1109/jstars.2013.2289301. (pdf).

[31] U. Wegmüller, A. Wiesmann, C. Werner and O. Frey. *Considering thermal expansion component in IPTA*. Technical report. Gamma Remote Sensing AG, 2014. (pdf).

[32] U. Wegmüller, A. Wiesmann, C. Werner and O. Frey. *KOMPSAT-5 support within GAMMA Software*. Technical report. Gamma Remote Sensing AG, 2014. (pdf).

[33] O. Frey, M. Santoro, C. L. Werner and U. Wegmüller. 'DEM-based SAR pixel area estimation for enhanced geocoding refinement and radiometric normalization'. In: *IEEE Geoscience and Remote Sensing Letters* 10.1 (2013), pages 48–52. DOI: 10.1109/LGRS.2012.2192093. (pdf).

[34] C. Hämmig, M. Huss, H. Keusen, J. Hess, U. Wegmüller, Z. Ao and W. Kulubayi. 'Hazard assessment of glacial lake outburst floods from Kyagar glacier, Karakoram mountains, China'. In: *Annals of Glaciology* 55.66 (2013), pages 34–44. DOI: 10.3189/2014aog66a001. (pdf).

[35] T. Strozzi, P. Teatini, L. Tosi, U. Wegmüller and C. Werner. 'Land subsidence of natural transitional environments by satellite radar interferometry on artificial reflectors'. In: *Journal of Geophysical Research: Earth Surface* 118 (2013), pages 1–15. DOI: 10.1002/jgrf.20082. (pdf).

[36] U. Wegmüller, M. Santoro and C. Werner. 'Multi-temporal SAR data filtering for land applications'. In: *ESA Living Planet Symposium*. 2013. (pdf).

[37] U. Wegmüller, O. Frey and C. Werner. 'Point density reduction in Persistent Scatterer Interferometry'. In: *EUSAR 2012; 9th European Conference on Synthetic Aperture Radar*. 2012, pages 673–676. (pdf).

[38] U. Wegmüller, T. Strozzi and C. Werner. 'Ionospheric path delay estimation using split-beam interferometry'. In: *2012 IEEE International Geoscience and Remote Sensing Symposium*. 2012, pages 3631–3634. DOI: 10.1109/IGARSS.2012.6350630. (pdf).

[39] C. Werner, U. Wegmüller and T. Strozzi. 'Deformation time-series of the Lost-Hills Oil Field using a multi-baseline interferometric SAR inversion algorithm with finite-difference smoothing constraints'. In: *AGU Fall Meeting*. 2012. (pdf).

[40] O. Frey, M. Santoro, C. Werner and U. Wegmüller. 'DEM-based SAR pixel area estimation for enhanced geocoding refinement and radiometric normalization'. In: *FRINGE 2011*. 2011. (pdf).

[41] C. Werner, U. Wegmüller, O. Frey and M. Santoro. 'Interferometric processing of PALSAR wide-beam ScanSAR data'. In: *FRINGE 2011*. 2011. (pdf).

[42] U. Wegmüller, D. Walter, V. Spreckels and C. Werner. 'Nonuniform ground motion monitoring with TerraSAR-X persistent scatterer interferometry'. In: *IEEE Transactions on Geoscience and Remote Sensing* 48.2 (2010), pages 895–904. DOI: 10.1109/TGRS.2009.2034611. (pdf).

[43] L. Petrat, U. Wegmüller, K. Zimmermann and I. Al Quseimi. 'The potential of high resolution satellite interferometry'. In: *IOR 2009 - 15th European Symposium on Improved Oil Recovery*. European Association of Geoscientists and Engineers, 2009. DOI: 10.3997/2214-4609.201404823. (pdf).

[44] U. Wegmüller, M. Santoro, C. Werner, T. Strozzi and A. Wiesmann. 'ERS –ENVISAT tandem cross-interferometry coherence estimation'. In: *IGARSS 2009*. 2009. DOI: 10.1109/igarss.2009.5416902. (pdf).

[45] U. Wegmüller, M. Santoro, C. Werner, T. Strozzi, A. Wiesmann and W. Lengert. 'DEM generation using ERS –ENVISAT interferometry'. In: *Journal of Applied Geophysics* 69 (2009), pages 51–58. DOI: 10.1016/j.jappgeo.2009.04.002. (pdf).

[46] U. Wegmüller, C. Werner and M. Santoro. 'Motion monitoring for etna using ALOS PALSAR time series'. In: *ALOS PI Symposium*. 2009. (pdf).

[47] U. Wegmüller, D. Walter, V. Spreckels and C. Werner. 'Evaluation of TerraSAR-X DInSAR and IPTA for ground-motion monitoring'. In: *TerraSAR-X Science Team Meeting*. 2008. (pdf).

[48] M. Santoro, C. Werner, U. Wegmüller and O. Cartus. 'Improvement of interferometric SAR coherence estimates by slope-adaptive range common-band filtering'. In: *IGARSS 2007*. 2007. DOI: 10.1109/igarss.2007.4422746. (pdf).

[49] C. Werner, U. Wegmüller, T. Strozzi, A. Wiesmann and M. Santoro. 'PALSAR multi-mode interferometric processing'. In: *Proc. First Joint PI Symp. ALOS Data Nodes for ALOS Sci. Program*. 2007. (pdf).

[50] T. Strozzi, A. Wiesmann, A. Sharov, A. Kouraev, U. Wegmüller and C. Werner. 'Capabilities of L-band SAR data for arctic glacier motion estimation'. In: *IGARSS 2006*. 2006. DOI: 10.1109/igarss.2006.978. (pdf).

[51] U. Wegmüller, C. Werner, T. Strozzi and A. Wiesmann. 'Ionospheric electron concentration effects on SAR and InSAR'. In: *IGARSS 2006*. 2006. DOI: 10.1109/igarss.2006.956. (pdf).

[52] U. Wegmüller. *Processing of fine-beam HH ALOS PALSAR stripmap data*. Technical report. Gamma Remote Sensing AG, 2006. (pdf).

[53] C. Werner and U. Wegmüller. *ALOS PALSAR data processing using GAMMA Software*. Technical report. Gamma Remote Sensing AG, 2006. (pdf).

[54] A. Wiesmann, C. Werner, M. Santoro, U. Wegmüller and T. Strozzi. 'ScanSAR interferometry for land use applications and terrain deformation'. In: *IGARSS 2006*. 2006. DOI: 10.1109/igarss.2006.796. (pdf).

[55] U. Wegmüller, C. Werner, T. Strozzi and A. Wiesmann. 'ERS –ASAR integration in the interferometric point target analysis'. In: *FRINGE 2005*. 2005. (pdf).

[56] U. Wegmüller. *ERS –ASAR integration in GAMMA IPTA processing*. Technical report. Gamma Remote Sensing AG, 2005. (pdf).

[57] U. Wegmüller. *GAMMA IPTA processing example Luxemburg*. Technical report. Gamma Remote Sensing AG, 2005. (pdf).

[58] C. Werner, U. Wegmüller, T. Strozzi and A. Wiesmann. 'Precision estimation of local offsets between SAR SLCs and detected SAR images'. In: *IGARSS 2005*. 2005. DOI: 10.1109/IGARSS.2005.1526747. (pdf).

[59] B. Rabus, C. Werner, U. Wegmüller and A. McCardle. 'Interferometric point target analysis of RADARSAT-1 data for deformation monitoring at the Belridge/Losthills oil fields'. In: *IGARSS 2004*. 2004. DOI: 10.1109/IGARSS.2004.1369833. (pdf).

[60] U. Wegmüller, C. Werner, T. Strozzi and A. Wiesmann. 'Multi-temporal interferometric point target analysis'. In: *Analysis of Multi-temporal Remote Sensing Images*. World Scientific, 2004. DOI: 10.1142/9789812702630_0015. (pdf).

[61] A. Wiesmann, C. Werner, T. Strozzi and U. Wegmüller. 'Combination of point and extended target based interferometric techniques'. In: *IGARSS 2004*. 2004. DOI: 10.1109/IGARSS.2004.1368575. (pdf).

[62] *MSP ENVISAT ASAR data processing*. Technical report. Gamma Remote Sensing AG, 2003.

[63] U. Wegmüller, T. Strozzi, C. Werner and A. Wiesmann. *GAMMA software validation report: ENVISAT ASAR data processing*. Technical report. Gamma Remote Sensing AG, 2003. (pdf).

[64] C. Werner, U. Wegmüller, T. Strozzi and A. Wiesmann. 'Interferometric point target analysis for deformation mapping'. In: *IGARSS 2003*. Volume 7. IGARSS-03. IEEE, 2003, pages 4362–4364. DOI: 10.1109/igarss.2003.1295516. (pdf).

[65] C. Werner, U. Wegmuller, A. Wiesmann and T. Strozzi. 'Interferometric Point Target Analysis with JERS-1 L-band SAR data'. In: *IGARSS 2003. 2003 IEEE International Geoscience and Remote Sensing Symposium. Proceedings (IEEE Cat. No.03CH37477)*. Volume 7. 2003, pages 4359–4361. DOI: 10.1109/IGARSS.2003.1295515. (pdf).

[66] A. Wiesmann, U. Wegmüller, C. Werner and T. Strozzi. 'ASAR multi-swath techniques'. In: *IGARSS 2003*. 2003. (pdf).

[67] U. Wegmüller, T. Strozzi, C. Werner and A. Wiesmann. 'SAR interferometry for topographic mapping and surface deformation monitoring'. In: *Photogrammetric Journal of Finland* 18.1 (2002), pages 24–32. (pdf).

[68] U. Wegmüller, C. Werner, T. Strozzi and A. Wiesmann. 'Automated and precise image registration procedures'. In: *Analysis of Multi-temporal Remote Sensing Images*. World Scientific, 2002. DOI: 10.1142/9789812777249_0002. (pdf).

[69] U. Wegmüller, C. L. Werner, T. Strozzi and A. Wiesmann. *Phase unwrapping with GAMMA ISP*. Technical report. Gamma Remote Sensing AG, 2002. (pdf).

[70] C. Werner, T. Strozzi, U. Wegmuller and A. Wiesmann. 'SAR geocoding and multi-sensor image registration'. In: *IEEE International Geoscience and Remote Sensing Symposium*. Volume 2. IGARSS-02. IEEE, 2002, pages 902–904. DOI: 10.1109/igarss.2002.1025723. (pdf).

[71] C. L. Werner, U. Wegmüller and T. Strozzi. 'Processing strategies for phaseunwrapping for INSAR applications'. In: *proceedings of the European conference on synthetic aperture radar (EUSAR 2002)*. 2002. (pdf).

[72] C. Werner, T. Strozzi, A. Wiesmann, U. Wegmüller, T. Murray, H. Pritchard and A. Luckman. 'Complementary measurement of geophysical deformation using repeat-pass SAR'. In: *IGARSS 2001*. 2001. DOI: 10.1109/IGARSS.2001.978320. (pdf).

[73] T. Strozzi, U. Wegmüller, C. Werner and A. Wiesmann. 'Measurement of slow uniform surface displacement with mm/year accuracy'. In: *IGARSS 2000*. 2000. DOI: 10.1109/IGARSS.2000.858368. (pdf).

[74] U. Wegmüller, T. Strozzi and L. Tosi. 'Differential SAR interferometry for land subsidence monitoring: methodology and examples'. In: *Proceedings of SISOLS 2000*. 2000. (pdf).

[75] U. Wegmüller, T. Strozzi and L. Tosi. 'ERS and ENVISAT differential SAR interferometry for subsidence monitoring'. In: *ERS –ENVISAT Symposium 2000*. 2000. (pdf).

[76] C. Werner, U. Wegmüller, T. Strozzi and A. Wiesmann. 'Gamma SAR and interferometric processing software'. In: *ERS –ENVISAT Symposium*. 2000. (pdf).

[77] U. Wegmüller. 'Automated terrain corrected SAR geocoding'. In: *IGARSS 1999*. 1999. DOI: 10.1109/IGARSS.1999.772070. (pdf).

[78] U. Wegmüller. *MSP JERS SAR processing: Absolute radiometric calibration*. Technical report. Gamma Remote Sensing AG, 1999. (pdf).

[79] U. Wegmüller, T. Strozzi and C. Werner. 'SAR interferometric and differential interferometric processing chain'. In: *IGARSS 1998*. 1998. DOI: 10.1109/igarss.1998.699687. (pdf).

[80] U. Wegmüller and C. Werner. 'SAR processing, interferometry, differential interferometry and geocoding software'. In: *EUSAR 1998*. 1998. (pdf).

[81] U. Wegmüller and C. L. Werner. 'GAMMA SAR processor and interferometry software'. In: *Proceedings of the 3rd ERS Scientific Symposium*. 1997. (pdf).