

# Curriculum Vitae Martina Tudor

## 1 Personal information

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**Date and place of birth:** 20 July 1976, Celje, Slovenia

**Home:** Slave Sajko 5, HR10310 Ivanić-Grad, Croatia

## 2 Education

**1994–2000** BSc Department of Geophysics, Faculty of Science, University of Zagreb  
Diploma: Prijenos česti zraka na područje Hrvatske

**2000–2007** MSc Department of Geophysics, Faculty of Science, University of Zagreb  
Diploma: Numeričke nestabilnosti fizikalnih parametrizacija u prognostičkom modelu ALADIN  
( Numerical instabilities of physical parameterizations in the prognostic model ALADIN )

**2010–** PhD in Atmospheric sciences, Department of Geophysics, Faculty of Science, University of Zagreb

### 2.1 Employment

**2000–** Meteorological and Hydrological Service of Croatia

## 3 Published papers

### 3.1 Papers in CC

1. Ivatek-Šahdan, S., M. Tudor, 2004. Use of high-resolution dynamical adaptation in operational suite and research impact studies, *Meteorol Z* 13(2), 1–10.
2. Catry, B., Geleyn, J.-F., Tudor, M., Bénard, P., Trojakova A., 2007. Flux conservative thermodynamic equations in a mass-weighted framework, *Tellus, Ser. A*, 59, 71–79.

3. Bencetić Klaić, Z., Pasarić, Z., Tudor, M. 2009. On the interplay between sea-land breezes and Etesian winds over the Adriatic. *Journal of Marine Systems*. 78, Suppl. 1, s101-s118.
4. Martin, P.J., J.W. Book, D.M. Burrage, C.D. Rowley, M. Tudor (2009), Comparison of model simulated and observed currents in the central Adriatic during DART, *Journal of Geophysical Research - Oceans* 114, C01S05. doi:10.1029/2008JC004842.
5. Rixen, M., Book, J.W., Carta, A., Grandi, V., Gualdesi, L., Stoner, R., Ranelli, P., Cavanna, A., Zanasca, P., Baldasserini, G., Trangeled, A., Lewis, C., Trees, C., Grasso, R., Giannechini, S., Fabiani, A., Merani, D., Berni, A., Leonard, M., Martin, P., Rowley, C., Hulbert, M., Quaid, A., Goode, W., Preller, R., Pinardi, N., Oddo, P., Guarnieri, A., Chiggiato, J., Carniel, S., Russo, A., Tudor, M., Lenartz, F., Vandenbulcke, L. 2009. Improved ocean prediction skill and reduced uncertainty in the coastal region from multi-model super-ensembles. // *Journal of Marine Systems*. 78, Suppl. 1, 282-289.
6. Vandenbulcke, L., Beckers, J.-M., Lenartz, F., Barth, A., Poulain, P.-M., Aidonidis, M., Meyrat, J., Arduin, F., Tonani, M., Fratianni, C., Torrisi, L., Pallela, D., Chiggiato, J., Tudor, Martina, Book, J. W., Martin, P., Peggion, G., Rixen, M. 2009. Super-ensemble techniques: Application to surface drift prediction. *Progress in Oceanography*. 52, 3, 149-167.
7. Vilibić, I., Book, J.W., Beg Paklar, G., Orlić, M., Dadić, V., Tudor, M., Martin, P.J., Pasarić, M., Grbec, B., Matić, F., Mihanović, H., Morović, M. 2009. West Adriatic coastal water excursions into the East Adriatic. *Journal of Marine Systems*. 78, S1; S132-S156.
8. Tudor, M., and Ivatek-Šahdan, S.: The case study of bura of 1<sup>st</sup> and 3<sup>rd</sup> February 2007, *Meteorol. Z.*, 19(5), 453–466, 2010.
9. Tudor, M. and Termonia, P.: Alternative formulations for incorporating lateral boundary data into limited area models, *Mon. Wea. Rev.*, 138, 2867–2882, 2010.
10. Tudor M., 2010. Impact of horizontal diffusion, radiation and cloudiness parameterization schemes on fog forecasting in valleys. *Met. Atm. Phy.* Vol.108, 57-70.
11. Renko, T. Kozarić, T. Tudor, M. 2012. An assessment of waterspout occurrence in the Eastern Adriatic basin in 2010 : Synoptic and mesoscale environment and forecasting method. *Atmospheric research*. 123, 1, 71-81.
12. Tudor, M., 2013. A test of numerical instability and stiffness in the parametrizations of the ARPÉGE and ALADIN models. *Geoscientific model development*, 6, 901–913.
13. Mihanović, H., Vilibić, I., Carniel, S., Tudor, M., Russo, A., Bergamasco, A., Bubić, N., Ljubešić, Z., Viličić, D., Boldrin, A., Malačić, V., Celio, M., Comici, C., Raicich, F., 2013. Exceptional dense water formation on the Adriatic shelf in the winter of 2012. *Ocean science*. 9, 561–572.
14. Janeković, I., Mihanović, H., Vilibić, I., Tudor, M., 2014. Extreme cooling and dense water formation estimates in open and coastal regions of the Adriatic Sea during the winter of 2012, *J. Geophys. Res. Oceans*, 119, 3200–3218, doi:10.1002/2014JC009865
15. Tudor, M., 2015. Methods for automatized detection of rapid changes in lateral boundary condition fields for NWP limited area models. *Geoscientific Model Development*. 8, 2627–2643.
16. Ivančan-Picek, B., Tudor, M., Horvath, K., Stanešić, A., Ivatek-Šahdan, S., 2016. Overview of the first HyMeX Special Observation Period over Croatia. *Nat. Hazards Earth Syst. Sci. Discuss.*, doi:10.5194/nhess-2016-247.
17. Kalinić, H. Mihanović, H. Cosoli, S. Tudor, M. Vilibić, I. 2016. Predicting ocean surface currents using numerical weather prediction model and Kohonen neural network: a northern Adriatic study. *Neural Computing and Applications*. 11, 1-10.

18. Vilibić, I. Šepić, J. Mihanović, H. Kalinić, H. Cosoli, S. Janeković, I. Žagar, N. Jesenko, B. Tudor, M. Dadić, V. Ivanković, D. 2016. Self-Organizing Maps-based ocean currents forecasting system. *Scientific Reports*. 6, 22924/1-22924/7.
19. Vilibić, I. Kalinić, H. Mihanović, H. Cosoli, S. Tudor, M. Žagar, N. Jesenko, B. 2016. Sensitivity of HF radar-derived surface current self-organizing maps to various processing procedures and mesoscale wind forcing. *Computational geosciences*. 20, 115-131
20. Vilibić, I., Šepić, J., Mihanović, H., Kalinić, H., Cosoli, S., Janeković, I., Žagar, N., Jesenko, B., Tudor, M., Dadić, V., Ivanković, D. 2016. Self-Organizing Maps-based ocean currents forecasting system. *Scientific Reports*. 6, 22924/1-22924/7
21. Ivatek-Šahdan, S., Stanešić, A., Tudor, M., Odak Plenković, I., Janeković, I. 2018. Impact of SST on heavy rainfall events on eastern Adriatic during SOP1 of HyMeX. *Atmospheric research*. 200, 36-59
22. Termonia, P., Fischer, C., Bazile, E., Bouyssel, F., Brožková, R., Bénard, P., Bochenek, B., Degrauwe, D., Derkova, M., El Khatib, R., Hamdi, R., Mašek, J., Pottier, P., Pristov, N., Seity, Y., Smolřková, P., Spaniel, O., Tudor, M., Wang, Y., Wittmann, C., Joly, A., 2018. The ALADIN System and its Canonical Model Configurations AROME CY41T1 and ALARO CY40T1. *Geosci. Model Dev.*, 11, 257–281.

### 3.2 Other publications

1. Tudor, M. Ivatek-Šahdan, S. 2002. MAP IOP 15 case study. *Cro. Meteorol. J.*, 37, 1-14.
2. Tudor, M., Ivatek-Šahdan, S. 2004. Use of high-resolution dynamical adaptation for the extreme wind estimate. *WGNE Blue Book*. 2004, 5; 15-16
3. M. Tudor, V. Tutiš, I. Stiperski i F. Vaňa, 2005. Testing the new semi-lagrangian horizontal diffusion scheme, *Cro. Meteorol. J.*, 40, 346-349.
4. D. Drvar, I. Stiperski, M. Tudor i V. Tutiš, 2005. Testing the new subgrid-scale orography representation on bora cases *Cro. Meteorol. J.*, 40, 304-307.
5. M. Tudor, I. Stiperski, V. Tutiš i D. Drvar, 2005. Comparison of few radiation and cloudiness parametrizations on a persistent low stratus case *Cro. Meteorol. J.*, 40, 342-345.
6. I. Janeković i M. Tudor 2005. The Adriatic Sea wave response to severe bura wind. *Cro. Meteorol. J.*, 40, 316-319.
7. Vakula, Z., Kalin, L., Tudor, M., Ivatek-Šahdan, S. 2005. Verification in Croatian Meteorological and Hydrological Service. *WGNE Blue Book*. 4, 5; 25-26.
8. Geleyn, J-F, Vňa, F., Cedilnik, J., Tudor, M., Catry, B., 2006. 'An intermediate solution between diagnostic exchange coefficients and prognostic TKE methods for vertical turbulent transport.' *WGNE Blue Book*.
9. Book, J.W., Martin, P., Rixen, M., Dykes, J., Wang, S., Ladner, S., Tudor, M., Chiggiato J. 2007. Real-time coastal monitoring and prediction for operations and research. *NRL Review*. 07; 185-187.
10. Vučetić, V., Ivatek-Šahdan, S., Tudor, M., Kraljević, L., Ivančan-Picek, B., Strelec Mahović, Nataša. 2007. Analiza vremenske situacije tijekom kornatskog požara 30. kolovoza 2007. *Cro. Meteorol. J.* 42; 41-65.
11. Tudor, M. 2011. The meteorological aspects of the DART field experiment and preliminary results. *Cro. Meteorol. J.*, 44/45; 31-46.

12. Mazzocco Drvar, D., Plačko-Vršnak, D., Tudor, M., Trošić, T., 2012. Flash-flood in Pula in the night between 24 and 25 September 2010. *Cro. Meteorol. J.*, 47, 35–43.
13. Tudor, M., Stanešić, A., Ivatek-Šahdan, S., Hrastinski, M., Odak Plenković, I., Horvath, K., Bajić, A., Kovaičić, T., 2015. Changes in the ALADIN operational suite in Croatia in the period 2011-2015. *Cro. Meteorol. J.* 50. 71–89.
14. Tudor, M., Stanešić, A., Ivatek-Šahdan, S., Hrastinski, M., Odak Plenković, I., Horvath, K., Bajić, A., Kovaičić, T., 2015. Operational validation and verification of ALADIN forecast in meteorological and hydrological service of Croatia. *Cro. Meteorol. J.* 50. 47–70.
15. Horvath, K., Bajić, A., Ivatek-Šahdan, S., Hrastinski, M., Odak Plenković, I., Stanešić, A., Tudor, M., Kovaičić, T. 2015. Overview of meteorological research on the project Weather intelligence for wind energy WILL4WIND. *Cro. Meteorol. Jour.*, 50; 91-104.
16. Tudor, M., Janeković, I. 2016. Modelling origin and transport fate of waste materials on the southeastern Adriatic coast (Croatia). *Geofizika.* 33, 1; 53-77.

### 3.3 Book chapters

1. Tudor, M., Ivatek-Šahdan, S., Stanešić, A., Horvath, K., Bajić, A.: Forecasting Weather in Croatia Using ALADIN Numerical Weather Prediction Model. In: *Climate Change and Regional/Local Responses*. Eds: Zhang, Y. and P. Ray, InTech, Rijeka, 59–88, 2013.

### 3.4 ALADIN and ALADIN–HIRLAM Newsletter

1. Ivatek-Šahdan, S., A. Stanešić, M. Tudor, A. Bajić, M. Hrastinski, T. Kovačić, K. Horvath, I. Odak Plenković, 2015. Operational ALADIN forecast in Croatia: current status and plans. *ALADIN-HIRLAM Newsletter*, 4, 58–65.
2. K. Horvath, A. Bajić, S. Ivatek-Šahdan, M. Hrastinski, I. Odak, A. Stanešić, M. Tudor, T. Kovačić, 2015. Weather Intelligence For Wind Energy – EU Project WILL4WIND. *ALADIN-HIRLAM Newsletter*, 4, 50–57.
3. M. Tudor, A. Stanešić, S. Ivatek-Šahdan, A. Bajić, M. Hrastinski, T. Kovačić, K. Horvath I. Odak Plenković, 2016. Operational forecast and research in Croatia in 2015. *ALADIN-HIRLAM Newsletter*, 6, 42–47.
4. M. Tudor, S. Ivatek-Šahdan, A. Stanešić, 2016. Fields in the clim files for ISBA (in combination with PGD). *ALADIN-HIRLAM Newsletter*, 7, 65–72.
5. M. Tudor, S. Ivatek-Šahdan, A. Stanešić, A. Bajić, K. Horvath, I. Odak Plenković, M. Hrastinski, 2016. NWP at Meteorological and Hydrological Service of Croatia - 2016. *ALADIN-HIRLAM Newsletter*, 7, 89–92.
6. M. Tudor, S. Ivatek-Šahdan, A. Stanešić, 2017. Sea surface temperature in operational forecast (example of Adriatic Sea). *ALADIN-HIRLAM Newsletter*, 8, 23–32.
7. Tudor, M., J. Šepić, I. Vilibić, I. Janeković, S. Ivatek-Šahdan, A. Stanešić, 2017. High-resolution operational NWP for forecasting meteotsunamis. *ALADIN-HIRLAM Newsletter*, 9, 37–42.

### 3.5 Seminars, summer schools and trainings

I have attended and presented my work at various workshops, working days and trainings: AROME Workshop (Romania 2005), Maintenance training (Budapest 2005), ALARO0/1 working days, SRNWP Workshops, SURFEX Working Days etc.

**15 – 26 May 2000** ALATNET Seminar of High Resolution Modelling, Radostovice, Czech Republic.

**3 – 7 Sep 2001** ECMWF Seminar on Key issues in the parameterization of subgrid physical processes, Reading (UK).

**27 May – 1 June 2002** ALATNET Seminar on numerical methods, Kranjska gora, Slovenia.

**25 – 29 Nov 2002** ALADIN workshop on maintenance and phasing, Budapest, Hungary.

**17–21 Feb 2003** ALADIN mini coupling workshop, Ljubljana, Slovenia.

**17 – 22 Aug 2003** Summer School on Mountain Meteorology, Trento, Italy.

**26 – 30 Jul 2004** Summer School on Mountain Meteorology, Trento, Italy.

**6 – 10 Sep 2004** ECMWF Seminar on Recent developments in numerical methods in atmosphere and ocean modelling, Reading (UK).

**14 – 18 Nov 2005** ALADIN-HIRLAM Workshop on code maintenance and data assimilation, Budapest, Hungary.

**21 – 25 Nov 2005** AROME Training Course, Poiana Brasov, Romania

**13 – 15 Jun 2012** ALARO Working Days, Ljubljana, Slovenia

**12 – 14 May 2014** ALARO1 Working Days, Vienna, Austria

**5 – 8 Sep 2016** Earth system modelling for seamless prediction: On which processes should we focus to further improve atmospheric predictive skill?, ECMWF, Reading, UK

**12 – 14 Sep 2016** ALARO1 Working Days, Brussels, Belgium

**23 – 27 Jan 2017** HPC Training, ECMWF, Reading, UK

**13 – 17 Mar 2017** Training on numerical methods, ECMWF, Reading, UK

### 3.6 Professional research stays

**2 Apr – 14 May 2000** Development of PBL diagnostics for DIAGPACK, Prague (CZ).

**8 Oct – 3 Nov 2000** PBL height diagnostics, Prague (CZ).

**10 Mar – 6 Apr 2001** PBL height diagnostics, Prague (CZ).

**15 Oct – 15 Dec 2001** PBL height and fibrillations, Toulouse (FR).

**17 Aug – 4 Oct 2002** Stability of physics schemes and fibrillations, Prague (CZ).

**1–30 Mar 2003** Robustness of physical parameterization, Toulouse (FR).

**1–30 Jun 2003** Physics-dynamics interface for predictor-corrector scheme, Prague (CZ).

**15 Sep – 31 Oct 2003** Phasing, Toulouse (FR).

**1–29 Feb 2004** Phasing, Toulouse (FR).

**15 Mar – 9 Apr 2004** ALADIN-AROME equations, Prague (CZ).

**27 Jun – 24 Jul 2004** Physics timestepping for predictor-corrector scheme, Prague (CZ).

**1 Nov – 18 Dec 2004** MesoNH physics, Toulouse (FR).

**7 – 11 Nov 2005** Alaro0 moist physics and pTKE scheme, Prague (CZ).

**16 Jan – 16 Feb 2006** Alaro0 phasing, Brussels (BE).

**26 Feb – 28 Mar 2006** DART06a research cruise, Adriatic.

**9 Apr – 6 May 2006** Alaro0 phasing, Prague (CZ).

**13 – 31 Aug 2006** DART06b research cruise.

**23 Oct – 18 Nov 2006** Physics-dynamics interface, Prague (CZ).