Bulletin of Atmospheric Science and Technology (2020) 1:257–259
https://doi.org/10.1007/s42865-020-00014-5

NEWS

# BAST newsletter—June 2020

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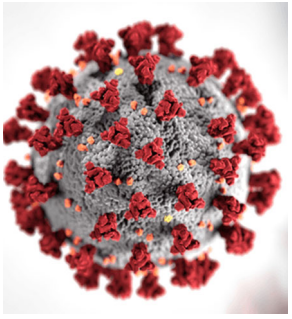
Published online: 6 July 2020


## 1 Call for papers on COVID-19



The BAST Editorial Board invites papers that investigate relationships between the initiation, spread, state, effects, or consequences of SARS-CoV-2/COVID-19 (COVID-19 hereafter for brevity) and atmospheric science and technology. Long-term exposure to coarse and fine particulate matter (PM10 and $PM_{2.5}$) and nitrogen compounds has been recognized as an important risk factor for a variety of pulmonary pathologies and viral respiratory infections. Important links between atmospheric phenomena—from dispersion to chemical reactions to seasonal climatology—and COVID-19 have just started to emerge. The following topics are especially welcome:

- Impacts of COVID-19 on indoor and outdoor air quality at regional scale or larger, including country- or region-specific analyses
- Impacts of air quality on COVID-19, such as the effects associated with enhanced levels of $PM_{2.5}$/$PM_{10}$ particles
- Numerical simulations (e.g., predictions of the virus spread or air quality changes based on traffic patterns and stay-at-home orders)

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- Analyses of large and complex datasets relevant to COVID-19, such as mobility data from cellular phones or satellite data

## 2 TEAMx update

TEAMx (www.teamx-programme.org) is an international research program that aims at improving the understanding of exchange processes in the atmosphere over mountains at multiple scales of motion, through field observations and modeling experiments. Richer observational evidence and better theoretical understanding will contribute to advancing the parameterizations of exchange processes (boundary-layer turbulence, convection, gravity wave drag) in numerical models for weather and climate prediction.

The TEAMx working group on orographic convection, led by Daniel Kirshbaum (McGill University) and M. Marcello Miglietta (ISAC-CNR), consists of about 20 scientists from 8 countries and has recently started its activity. Three main research topics have been identified:

- A pan-Alpine convection initiation climatology, aimed at identifying mechanisms relevant for convective triggering. A good starting point for this activity is to identify the climatologies in the Alpine regions already available, determine what methodologies were used, and understand if and how these methods could be extended over a pan-Alpine scale. The expertise in developing algorithms for cell tracking will be combined with radar/satellite/lightning data analysis and with model climatologies based on high-resolution reforecasts over several decades.
- A convection permitting model intercomparison: different models with grid spacing of about 1 km will be verified to get further insight into their ability to simulate diurnally forced and orographic convection. Deterministic model runs (e.g., AROME, COSMO, ICON, MOLOCH, WRF) will be analyzed together with ensemble forecasting systems on prototypical locally forced Alpine deep convection events. These are more relevant to TEAMx than synoptically forced events, because they depend more on local boundary-layer exchange processes. A list of relevant meteorological events and/or problematic forecast cases over different regions is being defined (mainly focusing on primary convection triggering).
- A model intercomparison of idealized large-eddy simulations (about 100 m grid spacing) of one or more types of orographic convection. Cases of "mechanically" forced convection, with conditionally unstable air forced up and over an Alpine-like ridge, and/or of "thermally" forced convection, with diurnal heating leading to convection initiation over or downwind of the ridge tops, will be considered. These experiments will provide insight into both model predictability and the role of turbulence in shaping the flow, cloud, and precipitation patterns. Two potential strategies are envisioned: one fully idealized using realistic but reduced-complexity input conditions, surface forcings, and terrain; alternatively, a semi-idealized approach uses real cases as a starting point, from which key atmospheric features are identified and used to progressively simplify the situation until the essential physics of interest are isolated.

Further details are available in the white paper of the TEAMx program.[1] The work of the orographic convection working group can be followed at http://www.teamx-programme.org/workgroups/orographic_convection/.

## 3 Upcoming conference

The NAWEA/WindTech 2021 Conference will be hosted at the University of Delaware (UD) in Newark, Delaware, USA, in fall 2021. The conference will bring together wind energy and grid integration students, faculty members, researchers, and industry, government, and non-governmental representatives from around the world. The theme of the conference is the transformation of the energy system to integrate large fractions of wind energy (> 50%) into the electricity grid. The conference will combine social and economic aspects with scientific and technical perspectives to meet the grand challenge of transitioning the energy system to renewable energy within a decade or two. The 2021 conference will reunite the North American Wind Energy Academy (NAWEA) Symposium and the International Conference on Future Technologies in Wind Energy (WindTech) while broadening the vision to include energy system integration. NAWEA/WindTech 2021 is being developed by the UD's Center for the Research in Wind (CReW), NAWEA, and the National Renewable Energy Laboratory (NREL).

Website: https://www.nawea.org/nawea-windtech-2021-conference/
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[1] Stefano Serafin, Mathias W. Rotach, Marco Arpagaus, Ioana Colfescu, Joan Cuxart, Stephan F. J. De Wekker, Mathew Evans, Vanda Grubišić, Norbert Kalthoff, Thomas Karl, Daniel J. Kirshbaum, Manuela Lehner, Stephen Mobbs, Alexandre Paci, Elisa Palazzi, Adriana Raudzens Bailey, Jürg Schmidli, Georg Wohlfahrt, Dino Zardi (2020): Multi-scale transport and exchange processes in the atmosphere over mountains - Programme and experiment. Innsbruck University Press, 42 pp. ISBN 978-3-99106-003-1, DOI https://doi.org/10.15203/99106-003-1.