

Particle-Based Cloud Microphysics COST Action Proposal

Sylwester Arabas
Jagiellonian University



European Cooperation in Science and Technology



European Cooperation in Science and Technology

- ❖ Europe's longest-running intergovernmental framework for cooperation in science and technology (est. 1971)



European Cooperation in Science and Technology

- ❏ Europe's longest-running intergovernmental framework for cooperation in science and technology (est. 1971)
- ❏ currently funded through H2020

COST Actions

- ❖ 4-year-long funding streams for collaboration between research groups with common focus areas and ongoing funded projects

COST Actions

- ❖ 4-year-long funding streams for collaboration between research groups with common focus areas and ongoing funded projects
- ❖ annual budget of ca. 130 kEUR

COST Actions

- ❖ 4-year-long funding streams for collaboration between research groups with common focus areas and ongoing funded projects
- ❖ annual budget of ca. 130 kEUR
- ❖ required participation of multiple institutions (e.g., 20) from multiple countries (e.g., 10, COST members and partner countries incl. Japan, Korea, US, Brazil, ...); post-start joining encouraged

COST Actions

- ❖ 4-year-long funding streams for collaboration between research groups with common focus areas and ongoing funded projects
- ❖ annual budget of ca. 130 kEUR
- ❖ required participation of multiple institutions (e.g., 20) from multiple countries (e.g., 10, COST members and partner countries incl. Japan, Korea, US, Brazil, ...); post-start joining encouraged
- ❖ eligible spendings: meetings, workshops, conferences, short term scientific mission, training schools, publications (focus on early-career researcher support)

COST members incl. Inclusiveness Target Countries

36 COST countries:

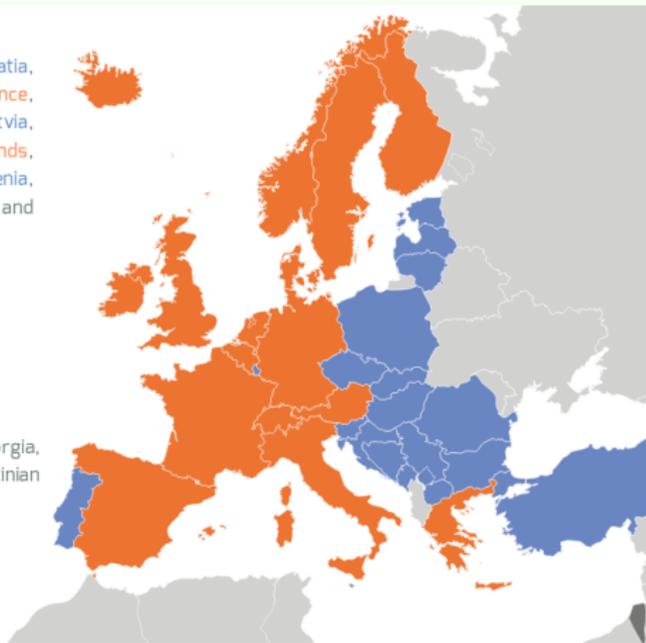
Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the former Yugoslav Republic of Macedonia.

1 Cooperating State:

Israel.

COST Near Neighbour Countries

Albania, Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Jordan, Lebanon, Libya, Moldova, Morocco, The Palestinian Authority, Russia, Syria, Tunisia and Ukraine.



COST Actions: calls, stats

- ❖ success rate: 20–25%¹
- ❖ natural sciences: 40% of the actions²
- ❖ >25% of proposal leaders are early-career investigators
- ❖ 33% of all proposers work in an Incl. Target Country
- ❖ Over 80% of future networks include COST International Partner Countries
- ❖ next open call: Sep 2019

¹<https://actu.epfl.ch/news/applications-for-approved-cost-actions-deadline-29/>

²https://www.cost.eu/news/get_involve_in_the_40_brand_new_actions_starting_in_spring_2019/

Examples of past COST actions

- P20 ('06) Large-Eddy Simulation for Advanced Industrial Design
- P21 ('06) Physics of droplets
- 732 ('05) Quality Assurance and Improvement of Microscale Meteorological Models
- MP0806 ('09) Particles in turbulence
- ES0604 ('07) Atmospheric Water Vapour in the Climate System
- ES0905 ('10) Basic Concepts for Convection Parameterization in Weather Forecast and Climate Models
- ES1004 ('11) European framework for online integrated air quality and meteorology modelling (EuMetChem)
- ES1005 ('11) TOSCA - Towards a more complete assessment of the impact of solar variability on the Earth's climate

COST Action proposal initiative

Working group list (just ideas, examples)

- ✚ Aerosol-cloud-rain microphysics, aqueous chemistry, ...

Working group list (just ideas, examples)

- ❏ Aerosol-cloud-rain microphysics, aqueous chemistry, ...
- ❏ Dynamics, turbulence representation, response to fluctuations

Working group list (just ideas, examples)

- ❏ Aerosol-cloud-rain microphysics, aqueous chemistry, ...
- ❏ Dynamics, turbulence representation, response to fluctuations
- ❏ Benchmark case studies, corroboration with measurements

Working group list (just ideas, examples)

- ❏ Aerosol-cloud-rain microphysics, aqueous chemistry, ...
- ❏ Dynamics, turbulence representation, response to fluctuations
- ❏ Benchmark case studies, corroboration with measurements
- ❏ Development of parameterisations for larger-scale models

Working group list (just ideas, examples)

- ❏ Aerosol-cloud-rain microphysics, aqueous chemistry, ...
- ❏ Dynamics, turbulence representation, response to fluctuations
- ❏ Benchmark case studies, corroboration with measurements
- ❏ Development of parameterisations for larger-scale models
- ❏ Algorithms, software engineering, visualisations, ...

Working group list (just ideas, examples)

- ❖ Aerosol-cloud-rain microphysics, aqueous chemistry, ...
- ❖ Dynamics, turbulence representation, response to fluctuations
- ❖ Benchmark case studies, corroboration with measurements
- ❖ Development of parameterisations for larger-scale models
- ❖ Algorithms, software engineering, visualisations, ...
- ❖ Training co-ordination, dissemination (review paper, special issue?)

Working group list (just ideas, examples)

- ❖ Aerosol-cloud-rain microphysics, aqueous chemistry, ...
- ❖ Dynamics, turbulence representation, response to fluctuations
- ❖ Benchmark case studies, corroboration with measurements
- ❖ Development of parameterisations for larger-scale models
- ❖ Algorithms, software engineering, visualisations, ...
- ❖ Training co-ordination, dissemination (review paper, special issue?)
- ❖ Beyond atmospheric clouds: interdisciplinary/industrial applications
- ❖ ...

Working group list (just ideas, examples)

- ❖ Aerosol-cloud-rain microphysics, aqueous chemistry, ...
- ❖ Dynamics, turbulence representation, response to fluctuations
- ❖ Benchmark case studies, corroboration with measurements
- ❖ Development of parameterisations for larger-scale models
- ❖ Algorithms, software engineering, visualisations, ...
- ❖ Training co-ordination, dissemination (review paper, special issue?)
- ❖ Beyond atmospheric clouds: interdisciplinary/industrial applications
- ❖ ...

COST does not provide research funding – supports collaboration activities only!

next steps?
communication channels?

pre-COST networking activities?

Mailing list initiative

Mailing list initiative

particle-based-cloud-modelling@mailing.uj.edu.pl

Communications relevant to the development and applications of particle-based models of atmospheric clouds:

- ❖ announcements of meetings,
- ❖ calls for submissions,
- ❖ funding opportunities,
- ❖ scholarships,
- ❖ openings,
- ❖ software/data releases,
- ❖ publications and
- ❖ other notices warranting community-wide dissemination

Format (met-jobs): open archive & subscription, spam-moderated

Web space initiative

http://particle-based-cloud-modelling.github.io

https://particle-based-cloud-modelling.github.io

80%



mailing.uj.edu.pl

Particle-Based Cloud Modelling Network Initiative

Mailing List

Venue for communications relevant to the development and applications of particle-based models of atmospheric clouds: announcements of meetings, calls for submissions, funding opportunities, scholarships, openings, software/data releases, publications and other notices warranting community-wide dissemination.

Archives and subscription management:

<https://mailing.uj.edu.pl/sympa/info/particle-based-cloud-modelling>

Event Calendar

Database of events announced on the mailing list:

Navigation: < | > today

January 2019

month list

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----------------------------|-----|-----|-------------------|-----|-----|-----|
| 30 | 31 | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| AMS Annual Meeting, Phoenix | | | ECU GA submission | | | |

- ❖ Ideas:
 - ❖ link catalogue (mailing list, ...)
 - ❖ event calendar (from the mailing list)
 - ❖ software catalogue (?)
 - ❖ list of research groups (?)
 - ❖ publication database (?)

- ❖ Co-maintaners and contributors welcome!

- ❖ Technicalities: public repo & hosting on github

http://particle-based-cloud-modelling.github.io

https://particle-based-cloud-modelling.github.io

80%



mailing.uj.edu.pl

Particle-Based Cloud Modelling Network Initiative

Mailing List

Venue for communications relevant to the development and applications of particle-based models of atmospheric clouds: announcements of meetings, calls for submissions, funding opportunities, scholarships, openings, software/data releases, publications and other notices warranting community-wide dissemination.

Archives and subscription management:

<https://mailing.uj.edu.pl/sympa/info/particle-based-cloud-modelling>

Event Calendar

Database of events announced on the mailing list:

Navigation: < | > today

January 2019

month list

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----------------------------|-----|-----|-------------------|-----|-----|-----|
| 30 | 31 | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| AMS Annual Meeting, Phoenix | | | ECU GA submission | | | |

2-nd Eulerian vs. Lagrangian workshop
Kraków, April 15–17 2019

Workshop in Kraków (April 15–17 2019)

http://ww2.ii.uj.edu.pl/~arabas/workshop_2019/

Workshop on Eulerian vs. Lagrangian methods for cloud microphysics

The meeting is aimed at bringing together researchers working on modelling cloud microphysics. It is a follow up event to the [workshop organised in Warsaw in 2015](#).

The meeting is organised jointly by:

- [Division of Computational Mathematics, Faculty of Math. and CS, Jagiellonian University](#) &
- [Institute of Geophysics, Faculty of Physics, University of Warsaw](#).

The workshop will take place in **Cracow, Poland on April 15-17, 2019** (week after EGU GA in Vienna) in the ``Auditorium Maximum'' of the Jagiellonian University.



wojciechkrzynski.eu

TOPICS AND FORMAT

The envisaged workshop topics range from formulation through implementation to validation of numerical models of aerosol, cloud and precipitation microphysics, and its interactions with turbulence, radiation, aqueous chemistry and atmospheric electricity.

pre-registration (expression of interest) results

Canada:

McGill/Montreal

Finland:

FMI

Germany:

TROPOS,

DLR,

U. Mainz,

DWD,

U. Hanover

Hungary:

U. Pecs

Israel:

HUJI,

Weizmann

Japan:

JAMSTEC,

UHyogo

Korea:

Yonsei

Poland:

U. Warsaw

Jagiellonian

Spain:

U. Castilla-La Mancha

Switzerland:

ETH

Ukraine:

UHMI

UK:

MetOffice,

U. Leeds,

U. St. Andrews

US:

NASA,

NOAA,

NCAR,

MTU,

PNNL,

CALTECH,

U. Utah,

U. Oklahoma

we!

oui?

Thank you for your attention!
(sylwester.arabas@uj.edu.pl)

Thanks for the organisers' support

<https://particle-based-cloud-modelling.github.io/>