

# Curriculum Vitae - Hans Huybrighs

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## Scientific career

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**2022-2024, Postdoctoral fellow**, Khalifa University, UAE

- Particle environment of Jupiter's moons Europa and Io
- Scientific preparations of the JUICE mission

**2019-2022, ESA postdoctoral research fellow**, *ESA/ESTEC, the Netherlands*

- Activity and variability of the Galilean icy moons' exospheres: measurements, modelling and predictions in the context of the JUICE mission
- Scientific preparations of the JUICE mission.
- Project management tasks in collaboration with JUICE project scientist
  - Design of JUICE information database
  - Lead the design and implementation of the [JUICE acronym database](#)
- Part of review committee for large grants (several 10k)
- Hubble Space Telescope: media review of paper and press release proofreading

## Education

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**PhD, 2015-2018**     **Physics, *Magna Cum Laude***

Thesis: "A search for signatures of Europa's atmosphere and plumes in Galileo charged particle data"  
*Max Planck Institute of Solar System Research, Göttingen, Germany; Swedish Institute of Space Physics (IRF), Kiruna, Sweden; Braunschweig University of Technology, Germany*

**MSc, 2012-2015**     **Aerospace Engineering: Space Flight, *Cum Laude***

Thesis: "The feasibility of in-situ observations of Europa's water vapour plumes"  
*Delft University of Technology, the Netherlands*

**BSc, 2008-2012**     **Aerospace Engineering**

*Delft University of Technology, the Netherlands*

## Awards and distinctions

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- 2020: Nominated for the PhD cup ([www.phdcup.be](http://www.phdcup.be)). Belgian science communication competition for recent PhD graduates. Selected as 1 of 16 nominees out of 81 applications.
- 2020: Editors' Pick in AGU Advances digest for Huybrighs et al., 2020.
- 2020: Europlanet Science Congress - Science Flash - First Prize, three-minute improvised science presentation.
- 2019: Famelab Delft winner: competition where scientists present their research in three minutes. Participated in Dutch national finals.
- 2014: '*Bronzen Galileiprijs*': awarded by Belgian astronomy society for contributions to the popularisation of astronomy.

## Contributions to the scientific community

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### Organisation of scientific conferences

- Workshop lead co-organiser: Two-day workshop on 'Outer planet moon-magnetosphere interaction' at ESA/ESTEC ([link](#)), >60 participants, two days (2020).
- Session main convenor 'Environments of outer planet moons: particles, plasma, fields and dust': European Planetary Science Congress ([EPSC 2020](#)), Granada/online
- Session co-convenor: [EPSC 2021](#), [EGU 2020](#), [EPSC 2019](#), session chair [COSPAR 2020](#)
- 2020: Early career social event, course on future research. EPSC, Granada/online
- 2017: local organizing committee & co-convenor: Rocks and Stars II, Göttingen

### Other

- 2019 - now. Founding of Research Fellow network at ESTEC
- 2019 - now. Europlanet Early Career Network: co-chair of working group on future research. Connect early career researchers to future research (chairing meetings, organising talks, writing articles, conducting interviews...)

### Reviewer

- For Journal of Geophysical Research, Space Physics
- External reviewer for NASA panel

### Educational tasks

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2018-2019: guest **seminar** for students BSc/MSc, at the university of Delft and Leiden, and the Wellington Institute of Technology (New Zealand)

2019 - now: **supervision** of students as main supervisor

- 2 BSc students (2.5 months summer 2019, summer 2020)
- 1 MSc student (Sept. 2019 - June 2020), University Leiden

2020: **mentoring** of undergraduate student at EPSC conference

### Memberships

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- JUICE geophysics and magnetosphere working group
- Europlanet Society, AGU, IAU Junior member

### Additional skills and training

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*Science communication*: Summer School Science Communication (Leiden University, 5 days, July 2021), PhD cup media training (4 days, 2020), TU Delft Science Communication training session (2 half days, 2019), FameLab Masterclass in Science Communication (2 days, 2019)

*Space topics*: Human Spaceflight (5 day ESA course) Design of Space Missions and Systems (5 day ESA course, 2020), EU & Space Policy (1 day ESA course, 2020), Ladybird guide to Spacecraft Operations (4 day ESA course, 2019)

*COSPAR Leadership Workshop 2021 (3 half days)*

*Languages:* Dutch (native), English (fluent), French (basic), Swedish (very basic)

*Computer:* Python, IDL, Matlab, Java, Git, Spice, Linux, numerical simulations, data analysis

## Science communication

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- *Since 2016, **presentations:*** ~one talk per month to a non-scientific audience (adults/kids) for schools, public observatories and others (science festival) in different countries (Belgium, the Netherlands, Germany, New Zealand and Iceland).
- *Since 2019, **writing*** popular scientific articles ([EOS wetenschap](#), Dutch language science magazine), contributed to kids book
- *Since 2019, **Cultural collaborations:*** lecture with Jazz trio, space sarau with dancers and musicians, lecture astronomy and navigation (cultural collaboration Volkenkunde museum Leiden and Maori, native New Zealanders).
- *Since 2016, **science workshop for kids,*** design and performance
- Answering questions of journalists (de Volkskrant, Dutch radio, het Belang van Limburg, Gizmodo). Podcast day of science Belgium, 2020.
- Science shows (ESA open day 2021, 2019, Göttingen Night of Science 2017, hundreds of participants)

2008 - 2015, **Youth organisation for astronomy** Descartes (Cosmodrome Genk, Belgium) Make kids and teenagers passionate about astronomy. Active members: 40-50. Workload: 6-8hrs/week. Activities every two weeks, summer camp, spring camp.

- 2010-2013, president of organisation (3 years)
- 2011: responsible for the astronomy introduction course (>30 participants, 10 lessons)
- 2012: responsible for ten-day astronomy youth camp
- 2012: responsible for the yearly gathering of Belgian astronomy clubs with lecture of ESA astronaut Frank De Winne (>100 participants)
- Since 2015: coaching of new generation of volunteers

## Scientific publications

Peer reviewed publications: 6

Publications in preparation: 2

White papers: 3

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Submitted publications: 1

Observation proposals: 1

h-index: 3

Peer reviewed publications, first author and papers led by students  
(\*\*\* denotes student supervised by me)

1. Assessing JUICE's ability of in situ plume detection in Europa's atmosphere. T. Winterhalder\*\*\* and **H.L.F. Huybrighs**. Accepted by Planetary and Space Science.
2. **H. L. F. Huybrighs**, E. Roussos, A. Blöcker, N. Krupp, Y. Futaana, S. Barabash, L. Z. Hadid, M. K. G. Holmberg and O. Witasse. (2021). Reply to comment on "An Active Plume Eruption on Europa During Galileo Flyby E26 as Indicated by Energetic Proton Depletions." *Geophysical Research Letters*.  
<https://doi.org/10.1029/2021GL095240>
3. **H. L. F. Huybrighs**, E. Roussos, A. Blöcker, N. Krupp, Y. Futaana, S. Barabash, L. Z. Hadid, M. K. G. Holmberg, O. Lomax and O. Witasse. (2020). An Active Plume Eruption on Europa During Galileo Flyby E26 as Indicated by Energetic Proton Depletions. *Geophysical Research Letters*  
<https://doi.org/10.1029/2020GL087806>  
Citations: 6 (journal statistics).
  - This paper was an Editor's pick for AGU Advances Digest.
  - Media articles about this research have appeared in international media ([Forbes science](#), [gizmodo](#), [ifl science](#)).
4. **H.L.F. Huybrighs**, Y. Futaana, S. Barabash, M. Wieser, P. Wurz, N. Krupp, K-H. Glassmeier, B. Vermeersen. (2017). On the in-situ detectability of Europa's water vapour plumes from a flyby mission. *Icarus*.  
<https://doi.org/10.1016/j.icarus.2016.10.026>  
Citations: 6 (journal statistics).

Peer reviewed publications, co-authored

1. M.K.G. Holmberg, F. Cipriani, T. Nilsson, S. Hess, **H.L.F. Huybrighs**, L.Z. Hadid, G. Déprez, R. Wilson, M.W. Morooka, M. Felici. (2021) The Cassini ion wake characteristics revealed by comparing Langmuir probe measurements and SPIS simulations: implications for in-situ data analyses and ion temperature estimates. *Journal of Geophysical Research: Space Physics*.  
<https://doi.org/10.1029/2020JA029026>  
[Media article](#)
2. Gianluca Carnielli, M Galand, François Leblanc, L Leclercq, Ronan Modolo, A Beth, **H.L.F. Huybrighs**, X Jia. (2019) First 3D test particle model of Ganymede's ionosphere. *Icarus*. <https://doi.org/10.1016/j.icarus.2019.04.016>  
Citations: 7 (journal statistics).

Submitted, first author (draft available upon request)

1. One submitted

Publications by my students, in preparation (drafts available upon request)

2. Two in preparation

PhD thesis

1. H.L.F. Huybrighs. 2018 "A search for signatures of Europa's atmosphere and plumes in Galileo charged particle data". <https://arxiv.org/abs/1812.11215>

White papers (non-peer reviewed)

1. F. Crary, G.B. Clark, P. Delamere, C. Dong, R.W. Ebert, C. Harris, G. Hospodarsky, S. Hsu, **H. Huybrighs**, A. Kotova, T. Livengood, C. Paranicas, K. Retherford, E. Roussos, Y. Sarkango, J. Saur, J.R. Szalay, M. Vogt and L. Wang. (2021) The Magnetosphere of Jupiter: Moving from Discoveries Towards Understanding. White paper for NASA decadal survey. Bulletin of the AAS <https://doi.org/10.3847/25c2cfef.9caa18e1>
2. P. Kollmann and 80 other authors including **H.L.F Huybrighs**. Magnetospheric Studies: A requirement for addressing interdisciplinary mysteries in the Ice Giant systems. White paper for NASA decadal survey. Bulletin of the AAS. <https://doi.org/10.3847/25c2cfef.d955f654>

Observing proposals

- a) One ALMA proposal submitted (as co-author), not accepted.

Technical publications

1. O. Witasse, A. Solomonidou, L. Hadid, M. Holmberg, **H. Huybrighs**. *The JUICE Science Website Requirements Document*. 2021.
2. **H. Huybrighs**. *PEP internal charging study* (JUI-IRF-PEP-RP-009). 2014. 71 pages.

## Scientific presentations

Oral presentations at international conferences: 11  
Poster presentations at international conferences: 16  
Research seminars: 11

### Invited oral presentations at scientific conferences

- **H.L.F. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash. *Signatures of Europa's Atmosphere in Galileo Data*. Asia-Oceania Geophysics Society Congress 2019. Singapore.

### Oral presentations at scientific conferences

- **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, Y. Futaana, M. Holmberg, C. Götz and O. Witasse. *The effect of Europa's perturbed electromagnetic fields and induced dipole on energetic proton depletions in the Alfvén wings*. Europlanet Science Congress. September 2021. Online.
- M.K.G. Holmberg, F. Cipriani, G. Déprez, C. Imhof, O. Witasse, N. Altobelli, **H. Huybrighs**. *Spacecraft charging of JUICE in the auroral zone of Ganymede*. Europlanet Science Congress. September 2021. Online.
- **H. Huybrighs**, C. van Buchem, A. Blöcker, E. Roussos, N. Krupp, V. Dols, Y. Futaana, S. Barabash, O. Witasse, M. Holmberg. *Plumes and atmospheric charge exchange as a cause of energetic ion losses near Europa and Io*. COSPAR Scientific Assembly. January 2021, Sydney, Australia. [Video](#).
- **H.L.F. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash. *Signatures of Europa's atmosphere in Galileo EPD data*. Outer planet moon-magnetosphere interactions 2019, Selfoss, Iceland.
- **H.L.F. Huybrighs**, Elias Roussos, Norbert Krupp, Markus Fraenz, Yoshifumi Futaana, Stas Barabash, Karl-Heinz Glassmeier. *Are there signatures of active Europa plumes in Galileo in-situ data?* European Planetary Science Congress 2017, Vienna, Austria.
- **H. Huybrighs**, E. Roussos, N. Krupp, M. Fränz, Y. Futaana, S. Barabash, K.-H. Glassmeier. *The search for signatures of Europa plumes in Galileo in-situ data*. Rocks 'n' Stars II, 2017, Göttingen, Germany.
- **H. Huybrighs**, Y. Futaana, S. Barabash, M. Wieser, P. Wurz, N. Krupp, E. Roussos, M. Fränz, K.-H. Glassmeier, and B. Vermeersen. *Feasibility study of the in-situ detectability of Europa's neutral and plasma plumes from a flyby mission*. Europa-Enceladus Plumes Workshop, Caltech, October 15, 2016.
- **H. Huybrighs**, Y. Futaana, S. Barabash, M. Wieser, P. Wurz, N. Krupp, K.-H. Glassmeier, and B. Vermeersen. *Feasibility study of in-situ measurements of Europa's neutral and plasma plumes with JUICE/PEP*. Geophysical Research Abstracts Vol. 18, EGU2016-13425, 2016 EGU General Assembly 2016, Vienna.

### Oral presentations by students supervised by me

- T. Winterhalder, **H. Huybrighs**. *JUICE's ability of in situ plume detection in Europa's atmosphere*. Europlanet Science Congress, September 2021. Online, oral requested.
- R. Dayton-Oxland, **H. Huybrighs**, A. Mahieux, D. Goldstein, T. Winterhalder. *Impact of using a collisional plume model on detecting Europa's water plumes from a flyby*. Outer planet moon - magnetosphere interaction workshop 2020. ESA/ESTEC
- C. van Buchem, **H. Huybrighs**, A. Blöcker, V. Dols, O. Witasse, and Y. Miguel. *Energetic proton depletion near Io: atmospheric charge exchange and*

## Poster presentations at scientific conferences

- **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, Y. Futaana, M. Holmberg, C. Götz and O. Witasse. *The effect of Europa's induced dipole and plumes on energetic proton depletions in the Alfvén wings*. Magnetospheres of Outer Planets (MOP). July 2021. Online.
- M.K.G. Holmberg, F. Cipriani, T. Nilsson, S. Hess, **H.L.F. Huybrighs**, L.Z. Hadid, G. Déprez, R. Wilson, M.W. Morooka, M. Felici. *Simulations of the Cassini spacecraft charging and ion wake: implications for in-situ data analyses and ion temperature estimates in Saturn's inner magnetosphere*. Magnetospheres of Outer Planets (MOP). July 2021. Online.
- **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, N. Krupp, Y. Futaana, S. Barabash, M. Holmberg, and O. Witasse. *Energetic proton depletions near Europa: the effect of plumes, atmospheric charge exchange, Alfvén wings and the wake*. American Geophysical Union Fall Meeting 2020.
- **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, N. Krupp, Y. Futaana, S. Barabash, M. Holmberg, O. Witasse. *Energetic proton depletions near Europa: the effect of plumes, atmospheric charge exchange, Alfvén wings and the wake*. Outer planet moon - magnetosphere interaction workshop 2020. ESA/ESTEC
- **H. Huybrighs**, A. Blöcker, E. Roussos, C. van Buchem, N. Krupp, Y. Futaana, S. Barabash, M. Holmberg, and O. Witasse. *Energetic proton depletions near Europa: plumes, atmospheric charge exchange and Alfvén wings*. European Planetary Science Congress 2020. Granada/Online.
- M. Holmberg, F. Cipriani, G. Déprez, C. Imhof, O. Witasse, N. Altobelli, **H. Huybrighs**, and J.-E. Wahlund. *Variability of the plasma environment of the Jovian magnetosphere and implications for future particle and fields measurements by JUICE*. European Planetary Science Congress 2020. Granada/Online.
- **H. Huybrighs**, C. van Buchem, A. Blöcker, E. Roussos, N. Krupp, V. Dols, F. Yoshifumi, S. Barabash, O. Witasse, M. Holmberg. *Energetic ion depletions near Europa and Io: the effect of plumes and atmospheric charge exchange*. European Geophysical Congress 2020, Vienna/online
- M. Holmberg, F. Cipriani, **H. Huybrighs**, L. Hadid, G. Deprez. *How are the Cassini in-situ measurements affected by the presence of the spacecraft? Spacecraft - plasma interaction simulation results compared to in-situ measurements*. The 16th Spacecraft Charging Technology Conference 2020, Florida, US.
- **H. Huybrighs**, E. Roussos, N. Krupp, M. Fränz, Y. Futaana, S. Barabash, A. Blöcker, V. Dols, and O. Witasse. *Energetic ion depletions near the Galilean moons: atmospheric interaction and indications of the charge state*. European Planetary Science Congress, 2019, Geneva.
- **H.L.F. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash, K.-H. Glassmeier. *Signatures of Europa's atmosphere in Galileo EPD data during the E12 flyby*. Magnetospheres of Outer Planets 2018.
- G. Carnielli, M. Galand, R. Modolo, F. Leblanc, A. Beth, **H.L.F. Huybrighs**, X. Jia. *Constraining Ganymede's neutral and plasma environment through numerical simulations of its ionosphere*. Magnetospheres of Outer Planets 2018.
- G. Carnielli, M. Galand, R. Modolo, F. Leblanc, A. Beth, **H.L.F. Huybrighs**, X. Jia. *Constraining Ganymede's exosphere through numerical simulations of its ionosphere and Galileo observations*. European Planetary Science Congress 2018
- **H.L.F. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash, K.-H. Glassmeier. *The search for active Europa plumes in Galileo plasma particle detector data: the E12 flyby*. AGU fall meeting 2017. New Orleans, US.

- **H. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash, K.-H. Glassmeier. *The search for Europa plume signatures in Galileo plasma particle data*. Magnetospheres of Outer Planets 2017. Uppsala, Sweden.
- N.Krupp, M. Fraenz, E. Roussos, **H. Huybrighs**, S. Barabash, P.C. Brandt, C. Paranicas, D.G. Mitchell, Joseph Westlake, K. Khurana, X. Jia. *Electron measurements in the low latitude magnetosphere of Jupiter and in the vicinity of the Galilean moons: Current knowledge and future investigations with the PEP JEI and JoEE sensors onboard the JUICE spacecraft*. Magnetospheres of Outer Planets 2017. Uppsala, Sweden.
- **H. Huybrighs**, E. Roussos, N. Krupp, M. Fraenz, Y. Futaana, S. Barabash, and K.-H. Glassmeier. *The search for Europa plume signatures in Galileo in-situ data*. DPG Frühjahrstagung 2017 (German Physical Society Spring Meeting), Bremen, March 14, 2017.

## Invited research seminars

- Europa's water plumes. Technical University of Delft. October 2020. **Invited**
- Europa's water plumes. European Space Agency Science Seminar. June 2020. **Invited**
- Europa's water plumes. Advanced concepts team European Space Agency. April 2020. **Invited**
- How do Jupiter's icy moons interact with the magnetosphere? Leiden University, July 2019. **Invited**
- Europa's water plumes, will we get to detect them with JUICE? ESAC, June 2019. **Invited**
- Europa's plumes and atmosphere, what we can (still) learn from Galileo's charged particle data. Technical University of Delft. March 2019. **Invited**
- *Getting something out of nothing. The search for Europa plume signatures in Galileo particle detector data*. Swedish Institute of Space Physics (IRF). 8th of June 2017. **Invited**

## Research seminars

- Signatures of plumes and atmospheric charge exchange in energetic ion data from Europa. ESA, November 2019.
- *Tasting Europa's ocean The search for Europa plume signatures in Galileo particle detector data*. Max Planck Institute for Solar System Research. 10<sup>th</sup> of May 2017.
- *In-situ detectability of Europa's water vapour plumes*. Max Planck Institute for Solar System Research. 6th of July 2016.
- *Tasting Europa's ocean: the feasibility of in-situ observations of Europa's water vapour plumes*. Swedish Institute of Space Physics (IRF). 19th of Nov 2015. *PEP internal charging study: the results*. Swedish Institute of Space Physics (IRF). 20th of Feb 2014.



## Overview science communication

Outreach talks since 2016: 46

Popular science articles: 14

### Presentations to non-scientific audiences (since 2016)

- Skype a scientist. Passmore elementary, Alvin. 6 April 2021
- Lecturers without borders. 23 March 2021
- Skype a scientist. St. Mary's Visitation, Elm Grove. 24 February 2021.
- Skype a scientist. St. Mary Parish School, Menomonee Falls. 10 February 2021.
- Skype a scientist. St. Mary Parish School, Menomonee Falls. 5 February 2021.
- Skype a scientist. Basilica School of Saint Mary. 27 January 2021
- Skype a scientist 2x. Basilica School of Saint Mary. 21 January 2021
- Skype a scientist. Dobbs Ferry High School. 21 December 2020.
- Buitenaards detectivewerk (online), Cozmix, Brugge. 9 December 2020
- Alien detective work. VVS/JVS weekend. Cosmodrome, Genk. 3 October 2020
- Alien detective work, PhD cup semi-finals, Brussels. 23 September 2020
- Manen van ijs en vuur (Moons of Ice and Fire). Sound of Science, science festival, 6 September 2020. (cancelled because of pandemic)
- Online presentation and Q&A about Starlink en BepiColombo. Youth organisation for Astronomy, Belgium, 3 May 2020
- Twintigduizend mijlen onder een buitenaardse zee (Twenty thousand leagues under an alien ocean). Sterrenwacht Copernicus. 16 April 2020 (cancelled because of pandemic)
- Manen van ijs en vuur (Moons of Ice and Fire). Descartes youth symposium. 28 March 2020 (cancelled because of pandemic)
- Online astronomy Q&A. International School of Amsterdam. 23 March 2020
- Watervulkanen op Europa, proeven van een buitenaardse oceaan (Water volcanoes on Europa, a taste of an extraterrestrial ocean). Galileo, KNVWS afd. Zuid-Limburg. 23 November 2019
- Moons of Ice and Fire. Space storytellers, ESA open day. Noordwijk, the Netherlands. 7 October 2019
- Science show exoplanets. ESA open day. Noordwijk, the Netherlands. 7 October 2019
- Science show moons. ESA open day. Noordwijk, the Netherlands. 7 October 2019
- Europa: a taste of an extraterrestrial ocean. Bessensap 2019, Amsterdam, the Netherlands. 21 June 2019
- Moons of Ice and Fire. Astronomy on Tap Leiden ([video](#)), the Netherlands. 27 May 2019
  
- Watervulkanen op Europa, proeven van een buitenaardse oceaan (Water volcanoes on Europa, a taste of an extraterrestrial ocean). JWG Leiden, Nederland. 10 May 2019
- Moons of Ice and Fire. Nederlandse Famelab Finale NL ([video](#)). Tivoli, Utrecht, the Netherlands. 9 May 2019
- Europa: a taste of an extraterrestrial ocean ([video](#)). Winning presentation Famelab Delft. 3 April 2019.
- Water volcanoes on Europa, tasting an extraterrestrial ocean. Sunnulækjarskóli, Selfoss, IJsland. 11 February 2019.
- Water volcanoes on Europa, tasting an extraterrestrial ocean.
- New Zealand Astrobiology Network (NZAN), Lower Hutt, New Zealand. 2 November 2018
- Water volcanoes on Europa, tasting an extraterrestrial ocean.

- Water volcanoes on Europa, tasting an extraterrestrial ocean. Taita College, Lower Hutt, New Zealand. 2 November 2018.
- Water volcanoes on Europa, tasting an extraterrestrial ocean. Auckland Astronomical Society. Auckland, New Zealand. 22 October 2018.
- Watervulkanen op Europa, proeven van een buitenaardse oceaan (Water volcanoes on Europa, a taste of an extraterrestrial ocean). Cosmodrome, Genk, Belgium. 15 March 2018.
- Water volcanoes on Europa, tasting an extraterrestrial ocean. Otto-Hahn-Gymnasium, Göttingen, Germany. 30 November 2017.
- Planet 9. Summercamp JVS-Descartes, Zutendaal, Belgium. July 2017.
- Volcanism in the solar system, science show. Night of Science. Max Planck Institute for Solar System Research, Göttingen, Germany. 21 January 2017.
- Water volcanoes on Europa: tasting an extraterrestrial ocean. Science Slam. Max Planck Institute for Solar System Research, Göttingen, Germany. 15 July 2016.

## Cultural collaborations

- Space sarau, Munganga theater, Amsterdam, 28 Mei 2020 (cancelled because of pandemic)
- Navigating by the stars. Maori weekend (visit of native New Zealanders), Museum Volkenkunde Leiden, 2 Mei 2020 (cancelled because of pandemic)
- Sounds of Interstellar Space, lecture with jazz trio Trifid ([website](#)). Noordwijk, Space Expo. 24 January 2020
- Sounds of Interstellar Space, lecture with jazz trio Trifid ([website](#)). Bovenkarspel, sterrenwacht Orion. 11 January 2020
- Sounds of Interstellar Space, lecture with jazz trio Trifid ([website](#)). Utrecht, sterrenwacht Sonnenborgh. 10 January 2020

## Written science communication

### Book

- Children's book on Science facts (appearing end of 2021) by Angelique van Ombergen: I fact checked and made suggestions for the chapter on space.

### Op-ed

- Kritische vragen over klimaatverandering zijn nuttig, maar we mogen niet in herhaling vallen (Critical questions about climate change are useful, but we shouldn't keep repeating ourselves, [link](#)). *Knack*, Januari 2019.

## Printed popular science magazines

- Geiser op Europa en de zoektocht naar buitenaardsleven (Geisers on Europa and the search for extraterrestrial life, [link](#)). Zenit magazine. November 2021.
- Leeft ET op Europa? (Does ET live on Europa?, [link](#)) EOS special on astronomy. October 2021.
- Leeft ET op Europa? (Does ET live on Europa?, [link](#)) EOS Magazine. April 2021.
- Water volcanoes on Europa, a taste of an extraterrestrial ocean. Heelal, Januari 2019.
- Plumes on Europa - tasting an extraterrestrial ocean. Room, the space journal. April 2017.
- In-situ observations of Europa's plumes. Leonardo Times. April 2016.

## Online popular scientific writing

- Planeten verkennen: meer 'Men in black' dan 'Star trek' (Exploring planets: more 'Men in Black' than 'Star Trek', [link](#)). EOS blogs. April 2021.
- Buitenaards detectivewerk (Extraterrestrial detective work, [link](#)). EOS wetenschap. September 2020.
- Neen, de eerste bewoonbare exoplaneet kennen we nog niet (No, we haven't identified the first habitable exoplanet yet, [link](#)). EOS wetenschap. Augustus 2020.
- De leefbare zone bestaat niet (The habitable zone doesn't exist, [link](#)). EOS wetenschap. February 2020.
- Manen van ijs en vuur (Moons of ice and fire, [link](#)). EOS wetenschap. November 2019.
  
- Twintigduizend mijlen onder een buitenaardse zee (Twenty thousand leagues under an alien ocean, [link](#)). EOS wetenschap, September 2019

## Workshops

- Op zoek naar buitenaardsleven ('the search for extraterrestrial life'). Tajo, Gent. 29 May 2021
- Hoe weten we de Jupitermaan Europa een ondergrondse oceaan heeft? (How do we know that Jupiter's moon Europa has a subsurface ocean? Interactive online workshop). 14 November 2020, Jongerenvereniging voor Sterrenkunde, Belgium
- Hoe land ik op een andere planeet? (How to land on another planet) Sound of Science science festival. 5-6 September 2020 (cancelled because of pandemic)
- Hoe land ik op een andere planeet (how to land on another planet)? Kinderuniversiteit Antwerpen. 8 Maart 2020 (cancelled because of pandemic)
- Nepnieuws (fakenews): teach kids how to recognize fakenews and how to find reliable information on science. JVS-Descartes, Cosmodrome, Genk. 16 Maart 2019.
- Landen op een andere planet (how to land on another planet): Zomerkamp JVS-Descartes, Born *België*. 2014.