

University of Groningen

Field observations of aerosol physical and chemical properties in the Netherlands

Liu, Xinya

DOI:

[10.33612/diss.1144463961](https://doi.org/10.33612/diss.1144463961)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:

2024

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Liu, X. (2024). *Field observations of aerosol physical and chemical properties in the Netherlands*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen.
<https://doi.org/10.33612/diss.1144463961>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Acknowledgement

What an unforgettable and irreplaceable journey this has been! Standing at the finish line, I'm struck by how swiftly time has flown by. Looking back, it's incredible to realize that five years have passed, and the experience was far from what I initially imagined—a sentiment that seems to echo across many PhD journeys. But that unpredictability is precisely what made these years so exciting, memorable, and deeply meaningful. These memories will undoubtedly become invaluable treasures in my life ahead. Although there were challenging moments, they were far outweighed by countless moments of happiness—all thanks to the incredible people around me. How fortunate I am to have had their support, help, and companionship along this journey!

First and foremost, I would like to express my heartfelt gratitude to my supervisor, **Prof. Ulrike Dusek**. Thank you for welcoming me, a student from a different research background, into your project. This journey presented challenges for me and brought its own complexities for you. Your dedicated guidance has brought me to where I am today. I deeply admire your rigorous and earnest approach to research, which has been immensely beneficial to my future academic career. I am especially grateful for your trust in me. During times when I lacked confidence, you believed in me, encouraging me to engage in various academic activities, organize, and lead research projects. Your support has been crucial to my academic growth. Thank you for your invaluable guidance and support over these five years; it has been a great honor to be your student!

I would also like to extend my sincere gratitude to my two other supervisors, **Prof. Harro A.J. Merijer** and **Prof. RuJin Huang**. Thank you, Harro, for being exceptionally approachable and always willing to address my questions. Your readiness to help has been invaluable throughout my PhD journey. And thank you, RuJin, for your support and for connecting me with experienced students. I truly appreciate the guidance and the opportunities you've provided.

In addition, I want to express my special thanks to **Dr. Bas Henzing** for the invaluable guidance and support throughout my PhD journey. Especially during the long and challenging period of the pandemic, our weekly online meetings became a crucial source of encouragement and motivation. You have not only guided my academic progress but also genuinely cared about my mental well-being, for which I am deeply grateful. I feel incredibly fortunate to have joined TNO, an opportunity I was able to get thanks to you, and I look forward with great anticipation to our continued collaboration!

Acknowledgement

I would like to express my gratitude to my dissertation committee members: **Prof. Regina Hitzenberger, Prof. George Biskos, and Prof. Wouter Peters**, for your invaluable feedback in improving this thesis.

This thesis would not have been possible without the support of my colleagues at KNMI, TNO, and the Ruisdael project. My heartfelt thanks to everyone involved. I am especially grateful to **Dr. Arnoud Apituley** and **Dr. Diego Alves Gouveia** for their invaluable data and guidance throughout my PhD journey.

A huge shoutout to my amazing Paranympths! **Margot**, thank you for your genuineness and endless willingness to help. During those times when I felt lost as graduation neared, your support and encouragement meant so much! I wish you all the best in everything you pursue! And **Pinar**, your warmth and thoughtfulness have always been such a comfort. Time flies when we're together, and I truly cherish our days of playing squash, tennis, and badminton. I can't wait for you to visit China! I'll be your personal tour guide (here's the proof, haha)!

I feel incredibly fortunate and privileged to have had the opportunity to pursue my PhD at CIO. My heartfelt thanks go to the **entire CIO family** for filling these years with unforgettable moments and cherished memories that I will carry with me always. There are a few people I would like to thank especially. **Xin**, you're incredible! Your joy is so infectious, and I'm beyond lucky to have had you by my side over these five years. You made the happy moments even brighter, and the tough times not so tough. I hope you stay happy always, and I know we'll always be there for each other! **Safoora**, you stood by me through a tough period, offering encouragement, support, and helping me find my way out of difficult emotions. That meant a lot to me! A special thanks to **Mike** and **Huilin**. You were so approachable, offering invaluable academic advice and insights that truly helped me navigate my PhD journey and plan my path forward. **Farilde, Alessandro, Noni, Iris, Bert S, and Steven**, the days working with you have been filled with fun, and the EGU conference is unforgettable. I'll also miss our countless lunches together. Thank you for all these wonderful memories! **Simone, Ramon, Dipayan, Bert K, Patricia, Alina, and Arendje**, you made my daily life at CIO so much smoother. I'm deeply grateful for all the help and support you've provided. Thank you for making everything easier! **Peiyi, Mengrong** and **Jian**, I'm so glad to have met you and to have shared so many enjoyable conversations!

A heartfelt thanks to the aerosol group members! My deepest gratitude goes to my CIO office mate, **Jan**. I will never forget our incredible business trips, from Cyprus and Paris to that unforgettable midnight drive back to the Netherlands from Germany, with music blasting all the way! Your unique sense of humor brought so much joy to my PhD experience, and I am truly grateful for your support throughout this journey. **Peng**, thank you for your support and being a good friend both in my studies and in life. I have no doubt that our paths will cross again in the future! Thank you to **Haiyan, Stijn, Yalan, Xi, Jinglan, Hengjia, Marije**, and all the other students, our discussions made my PhD journey more enriching.

Thanks to all my colleagues at TNO, both in Utrecht and in Petten. Special thanks to **Peter** for extending the opportunity to me as I approached the end of my PhD. I'm thrilled to be part of TNO and look forward to contributing more to our work! I'm also grateful to **Johan, Gerrit Jan, and Jan Peter** for their support in helping me settle in quickly in Utrecht. You made my transition into this new role much smoother.

Thanks to the aerosol club meeting members! A special thanks to **Julie** for your invaluable academic advice and guidance. Your expertise and unique perspectives have been truly enriching. I'm also grateful to all the other members—**Farhan, Rupert, Roy, Astrid, Janot, Danielle** and **Arjan**. Our discussions together have kept me inspired and eager to continue expanding my knowledge.

I also want to extend my gratitude to the other collaborators I have had during my PhD journey. A special thanks to **Andi**, even though our time working together was brief, it was incredibly enjoyable and rewarding. Your help and support meant a great deal to me, and I'm truly grateful for it! I'm also thankful for the insightful discussions and collaborations with **Jurgita, Kirsten, Darius, Joel, and Véronique**. I look forward to continuing our exchanges and exploring more opportunities to collaborate! I'd also like to thank my two senior colleagues in China, **Wei** and **Haobing**, for their academic support throughout my PhD. Although we have yet to meet in person, I look forward to the day we finally do!

To my friends in Groningen—thank you for making my time here richer and unforgettable. **Wei**, my tour guide, I'm your biggest fan! Your passion for life is truly remarkable! Every trip with you has been a joy, knowing I could count on you to have everything perfectly organized. I look forward to many more adventures together as we continue our time in the Netherlands! **Nana, Shuyao, and Can**, my first dear friends in Groningen—thank you for filling my life with color and joy! I hope everything is going wonderfully for you back in China. **Ping** and **Hao**, our time together may have been short, but it was truly joyful! **Shu** and **Tianci**, cooking and enjoying meals together, squeezing onto the couch for movies, playing games, traveling—these are memories I'll always treasure! I'm sure we'll meet again down the road! **Yueyue, Mei, Wen, Tinghua, Tianjian, and Chuang**, thank you for all the joyful moments we shared together.

To my friends in China—although distance and time have kept us from staying in close contact, I know we will never grow apart. My heartfelt thanks go to my dear friends—**Fan, Yu, Li, Jia, and Wang**—whom I've known since high school or even earlier. Thank you for being by my side during those six unforgettable years in Beijing. I also want to say a huge thank you to some amazing friends in China—**Jingjing** and **Xuezheng**. Back in Beijing, we were the closest roommates, going through the study abroad experience together. And **Tianqi**, I really miss the good times we had. Although we may not stay in touch as often, I'm so grateful that whenever we catch up, it feels like nothing has changed—we can still talk about anything and everything! Wishing all of us nothing but the best in the years to come!

Acknowledgement

I am also immensely grateful to everyone who has supported me along the way, even if their names are not listed here—each contribution has been deeply appreciated.

最后，以中文，致以我最真挚的感谢！感谢我亲爱的祖国，永远记得在疫情爆发期间收到中国大使馆寄来的包裹时，被祖国牵挂的感动。我也永远热爱我的祖国！感谢我最爱的和最爱我的家人，你们是我前进的动力也是我永远的后盾！平安喜乐！

凡是过往，皆为序章。欢迎一个新的未来！

Xinya Liu

2024-07-30