

## Gretchen D. Onstad, PhD

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### Research Interests

Research is focused on characterizing sources of pollution and preventing human exposure to environmental pollutants, in air and water:

- Iodinated disinfection byproduct potential of point-of-use drinking water disinfectants
- Woodsmoke source apportionment of ambient fine particulate matter (PM<sub>2.5</sub>)
- Measurement of chemical markers of exposure to woodsmoke and diesel exhaust in environmental and occupational settings
- Oxidative removal of algal toxins during drinking water disinfection
- Formation and removal of disinfection byproducts during drinking water treatment

### Education

BS, Chemistry, University of Washington 1997

PhD, Environmental Sciences and Engineering, University of North Carolina at Chapel Hill 2003

### Bibliography

**Onstad G.D.**, Canfield D., Quay P., and Hedges J.I. (2000) Sources of particulate organic matter in rivers from the continental USA: Lignin phenol and stable carbon isotope compositions. *Geochimica et Cosmochimica Acta*. 64:20:3539-3546.

**Onstad G.D.** and Weinberg H.S. (2005) Evaluation of the stability and analysis of halogenated furanones in disinfected drinking waters. *Analytica Chimica Acta*. 534:2:281-292.

Ho L., **Onstad G.**, von Gunten U., Rinck-Pfeiffer S., Craig K., Newcombe G. (2006) Differences in the chlorine reactivity of four microcystin analogues. *Water Research*. 40:6:1200-1209.

Krasner S.W., Weinberg H.S., Richardson S.D., Pastor S.J., Chinn R., Scilimenti M.J., **Onstad G.D.**, Thruston, Jr., A.D. (2006) Occurrence of a new generation of disinfection byproducts. *Environmental Science and Technology*. 40:7:7175-7185.

**Onstad G.D.**, Strauch S., Meriluoto J., Codd G., von Gunten U. (2007) Selective oxidation of key functional groups in cyanotoxins during drinking water ozonation. *Environmental Science and Technology*. 41:12:4397-4404.

Rodriguez E., **Onstad G.D.**, Kull T.P.J., Metcalf J.S., Acero J.L., von Gunten U. (2007) Oxidative elimination of cyanotoxins: Comparison of ozone, chlorine, permanganate and chlorine dioxide. *Water Research*. 41:15:3381-3393. (shared first-authorship)

**Onstad G.D.**, Weinberg H.S., Krasner S.W. (2008) Occurrence of Halogenated Furanones in U.S. Drinking Waters. *Environmental Science and Technology*. 42:9:3341-3348. Featured by Chemical & Engineering News ("Minimizing Halogenated Mutagens in Water: Water-treatment process affects formation of toxic compounds" March 31, 2008, 86:13:26)

Sullivan A.P., Frank N., **Onstad G.**, Simpson C.D., Collett Jr. J.L. (2011) Application of High-Performance Anion-Exchange Chromatography – Pulsed Amperometric Detection for Measuring

Carbohydrates in Routine Daily Filter Samples Collected by a National Network: 1. Determination of the Impact of Biomass Burning in the Upper Midwest. *Journal of Geophysical Research-Atmospheres*. 116:D08302.

## Presentations

**Onstad G.D.,** Weinberg H.S., and Richardson S.D. (2000) "Evolution of an Analytical Method for the Detection of Halogenated Furanones in Drinking Water." *American Water Works Association (AWWA) - Water Quality Technology Conference (WQTC) Proceedings*-November 5-9, 2000. Salt Lake City, UT.

**Onstad G.D.** and Weinberg H.S. (2001) "Improvements in Extraction of MX-analogues from Drinking Water." *AWWA-WQTC Proceedings*-November 11-14, 2001. Nashville, TN.

**Onstad G.D.,** Weinberg H.S., Aiken G.R. (2003) "Relationship Between Halogenated Furanones, HAAs, and THMs in Chlorinated Natural Organic Matter." *AWWA-WQTC Proceedings*-November 2-6, 2003. Philadelphia, PA.

*TOXIC: Barriers Against Cyanotoxins*, presented 4 progress report talks at European Union project meetings in Lisbon, Portugal (October 2003), Dundee, Scotland (September 2004), Amsterdam, The Netherlands (April 2005), and Karlsruhe, Germany (August 2005).

**Onstad G.D.** and von Gunten U. (2005) "Selective Oxidation and Detoxification of Cyanotoxins during Drinking Water Treatment." *17th International Ozone Association World Congress*-August 22-25, 2005. Strasbourg, France.

**Onstad G.D.** and von Gunten U. (2005) "Ozonation of Cyanotoxins: Oxidation Kinetics and Applications." *AWWA-WQTC Proceedings*- November 6-10, 2005. Quebec City, Quebec, Canada.

**Onstad G.D.** (2006) "Tracking DBP Formation and Removal in US Drinking Water Treatment Plants: MX and BMX analogues," *Gordon Research Conference: Drinking Water Disinfection By-products*, Mount Holyoke College, Massachusetts, August 13-18, 2006 (invited Poster presentation).

**Onstad G.D.,** Roy M., Simpson C.D. (2007) "Analytical Challenges of Measuring 3-Nitrotyrosine as a Biomarker for Human Exposure to Diesel Exhaust," *3rd Annual Postdoctoral Research Symposium*, University of Washington Postdoctoral Association, November 9, 2007. (Poster)

**Onstad G.D.,** Simpson C.D., Larson T.V. (2010) "Woodsmoke source apportionment modeling by ME-2 and PMF 3.0," *American Association for Aerosol Research Specialty Conference: Air Pollution and Health: Bridging the Gap from Sources to Health Outcomes*, San Diego, California, March 22-26, 2010. (Poster)

**Onstad G.D.,** Sasakura M.D., Evanson E.P.S., Simpson C.D. (2011) "Formation of iodinated disinfection byproducts by point-of-use water treatment systems," *UW/UBC/SFU 23rd Annual Occupational and Environmental Health Conference*, Semiahmoo, WA, January 6-7, 2011.

**Onstad G.D.,** Sasakura M.D., Evanson E.P.S., Korshin G.V., Simpson C.D. (2011) "Reactivity of iodine tablets with natural waters: SUVA and iodoform formation kinetics," *Micropol & Ecohazard 2011, 7th International Water Association (IWA) Specialist Conference on Assessment and Control of Micropollutants/Hazardous Substances in Water*, Sydney, NSW, Australia, July 11-13, 2011.