

# Analytic inverse radiative transfer algorithms for hydrologic optics applications

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## **Abstract**

A brief introduction to problems of hydrologic optics will be followed by an introduction to the analytic eigenfunction expansion method for solving idealized forward radiative transfer problems. Approximate eigenfunction expansions will be used to develop analytic (explicit) inversion algorithms from which properties of the water can be determined. Such analytic algorithms are directly useful for some inverse hydrologic optics applications and also may be used as initial estimates when solving problems with iterative (implicit) methods.