

1974-1994

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At the ILRC conference held in Sendai in 1974, the emphasis was on developing laser sources to meet remote sensing transmitter requirements. Twenty years later laser transmitters continue to improve, but the emphasis is on extending measurement capability.

In this talk, I present an overview of remote sensing measurements at Stanford beginning with Nd:YAG laser pumped LiNbO₃ OPO transmitter measurements of atmospheric concentrations of CH₄, CO₂ and H₂O and measurements of atmospheric temperature distributions. The presentation will also include a description of more recent coherent laser radar experiments at 1 μ m. Rapid progress in diode pumped solid state lasers, extended by nonlinear interactions, should allow all solid state laser transmitters to generate tunable output across the eyesafe infrared at peak and average output power levels required for remote sensing from aircraft and eventually from satellite platforms.