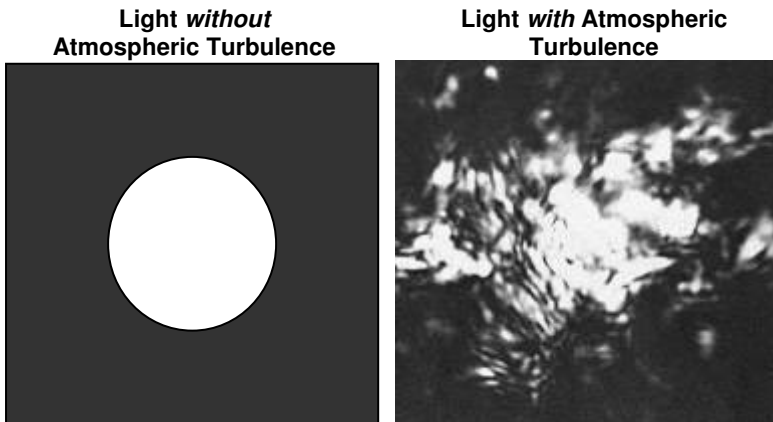


OFS Technology Overview

OSI's Optical Flow Sensor technology is based on two concepts:

- 1) **Optical Scintillation (Light Fluctuation)**
- 2) **Temporal cross-correlation (i.e. Time of Flight)**



The left-hand picture shows how light behaves without atmospheric turbulence (as in the vacuum of space). The right-hand picture demonstrates the diffusion of light (a.k.a. optical scintillation) caused by atmospheric turbulence, which exists in the air everywhere.

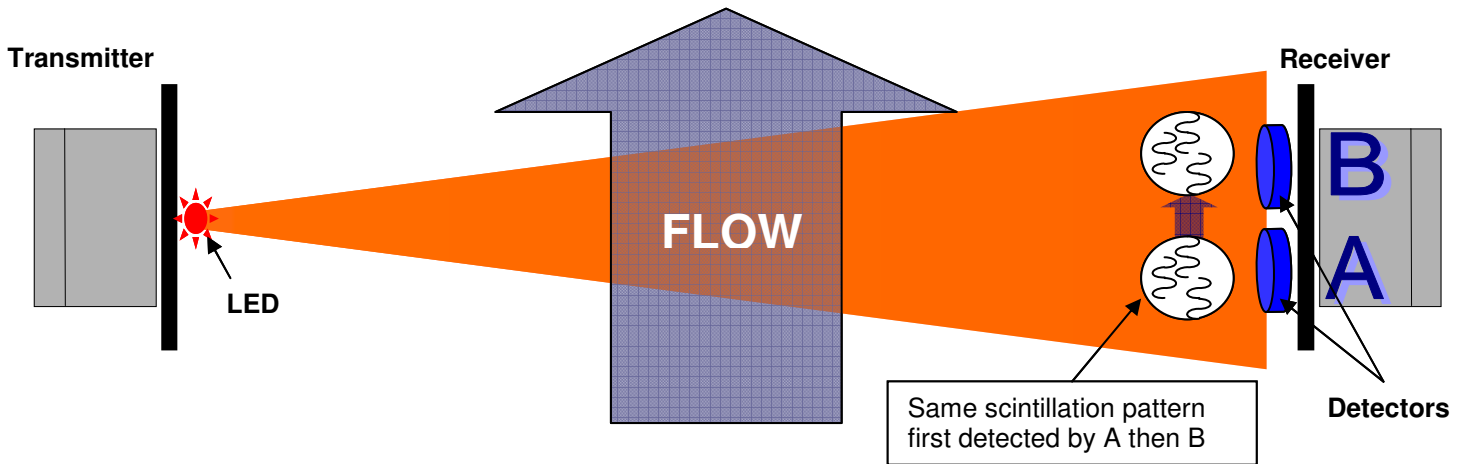
Scintillation – the refraction or diffraction of light through air pockets with different temperatures & densities (i.e. atmospheric turbulence).

Optical scintillation induces light fluctuations. This phenomenon is a measurable atmospheric condition. The method employed to measure scintillation has been in use for over **30 years** in atmospheric remote sensing.

Examples of scintillation – the light shimmering off a blacktop road on a hot day or the twinkling of a star at night.

★ **OFS technology is independent of the media temperature, pressure, humidity & opacity!**

Temporal Cross-Correlation



Temporal Cross Correlation – A Statistical Method to Measure Time of Flight: OFS measures the movement of scintillation “cells.” Detector A senses the scintillation pattern first and then detector B senses the same pattern as it moves through the beam and past both detectors. OFS measures the **time** at which this pattern is detected at each point and knows the **distance** between the two detectors. Using advanced digital signal processing and temporal cross-correlation, OFS can calculate the **velocity** of the flow: **Velocity = distance / time**