Article:

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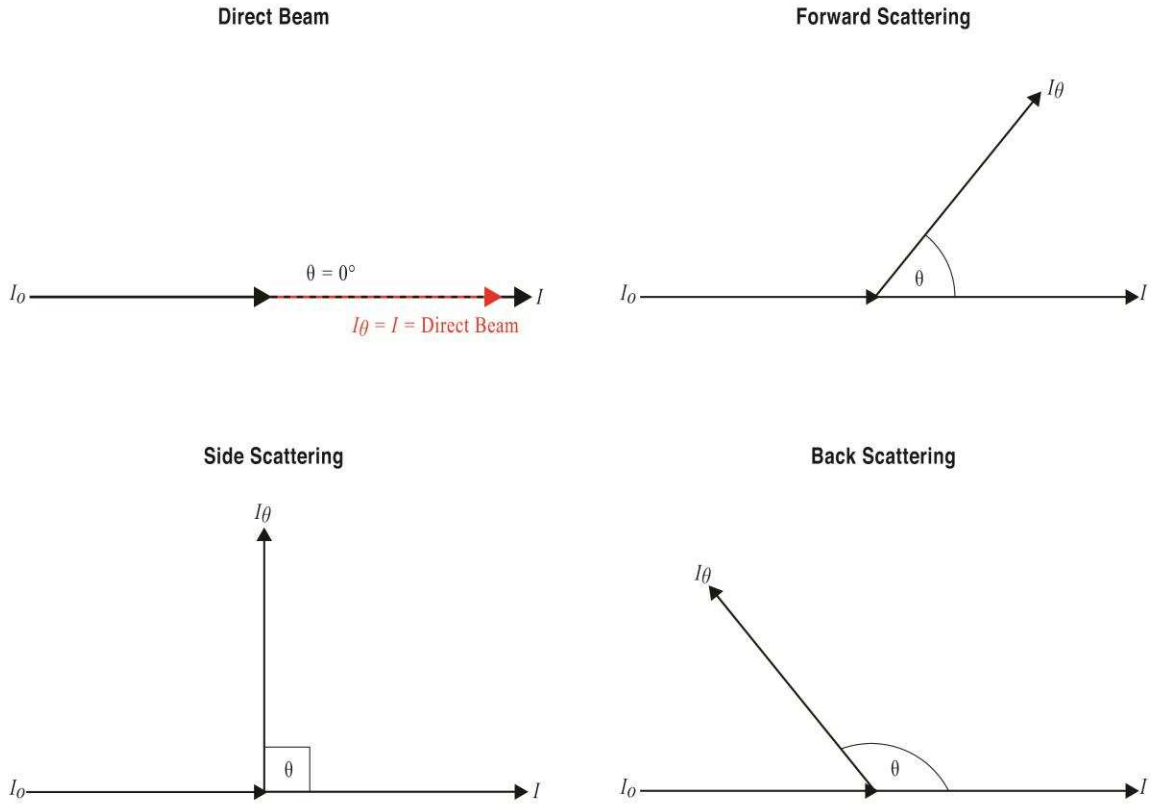

Figure 1. Illustrations of the light-scattering angle convention: the "direct beam" where $I_\vartheta = I$, forward-scattering, side-scattering and back-scattering. The incident beam is denoted I_0 and the direct transmitted beam at 0° to the incident beam is denoted I. The scattered beams are denoted I_ϑ, where ϑ is the scattering angle with respect to the incident beam.

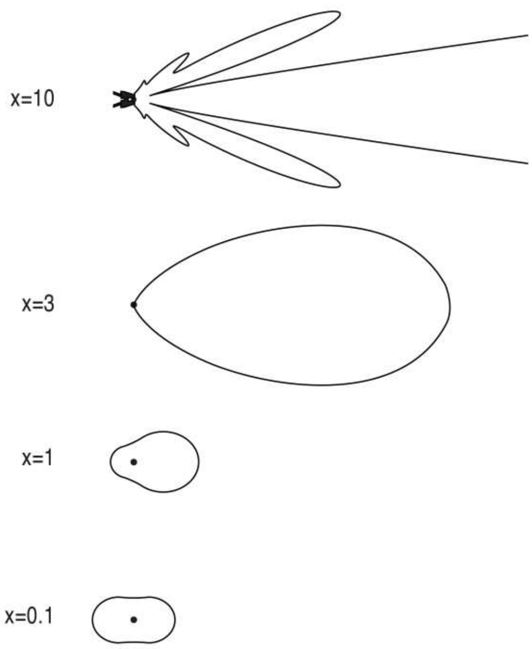

Figure 2. Scattering phase functions derived from Mie theory, with light incident from the left of the diagrams. Forward scattering becomes more pronounced as x increases.

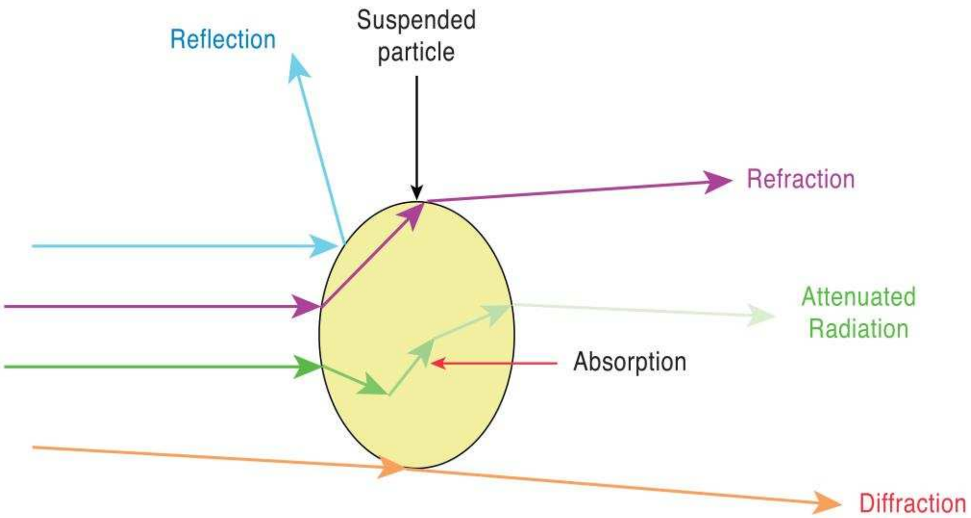

Figure 3. The scattering processes of reflection, refraction and diffraction, and the attenuation process of absorption of light due to a particle suspended in water.

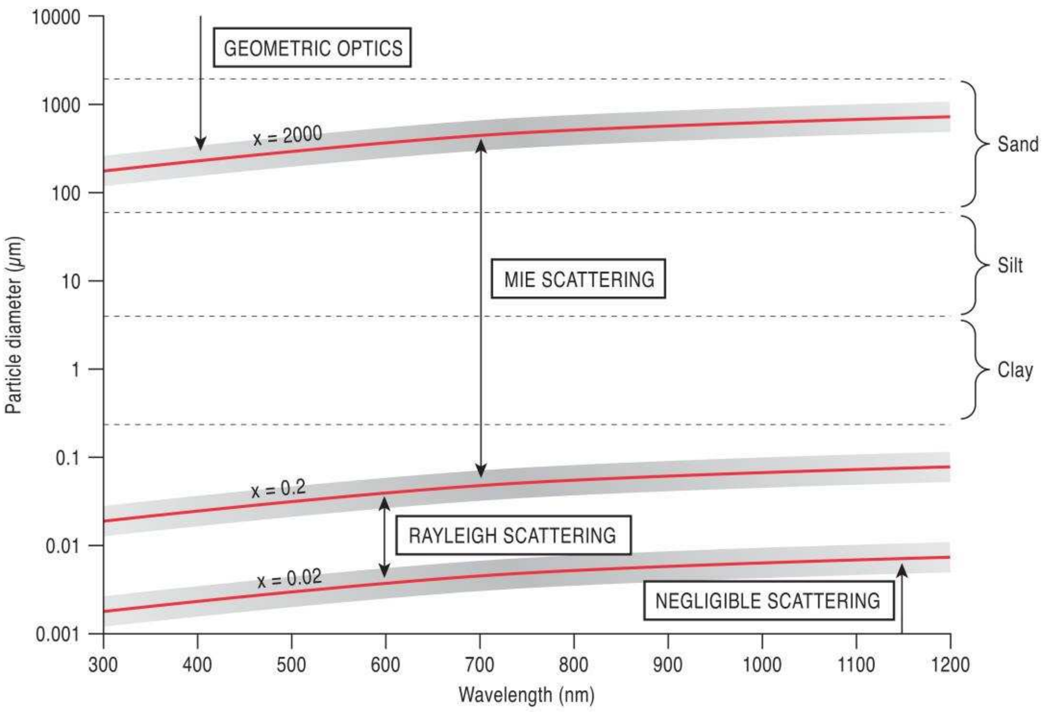

Figure 4. Light scattering theory regimes as a function of particle diameter and wavelength of light. Also shown are sediment particle size bands according to the American Geophysical Union Sediment Classification System.

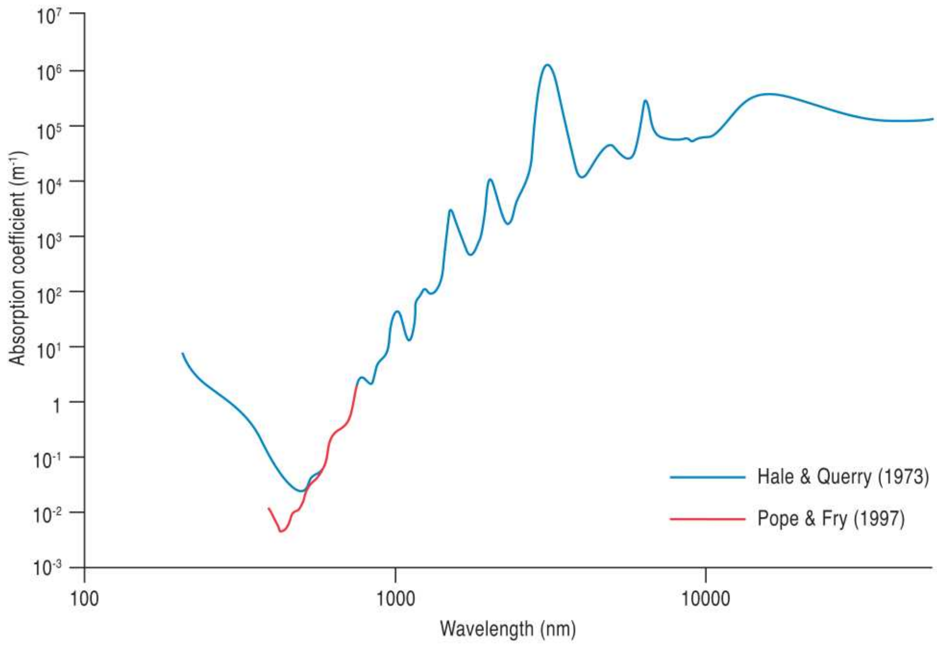

Figure 5. The light absorption spectrum of water. After Hale & Querry (1973) and Pope & Fry (1997).

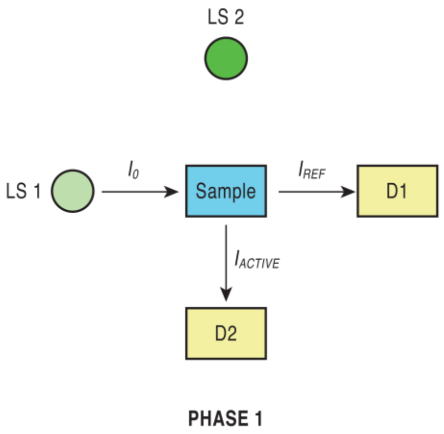

Figure 6. Beam-ratio process as described in GLI Method 2. LS 1 & LS 2 are the light sources; D1 and D2 are the detectors. I_0 is the light beam incident on the sample; I_{ACTIVE} is the 90° scattered light and is considered to be the actual nephelometric measurement; I_{REF} is the 0° transmitted light and is used purely as a reference value for use in a ratio-metric calculation.

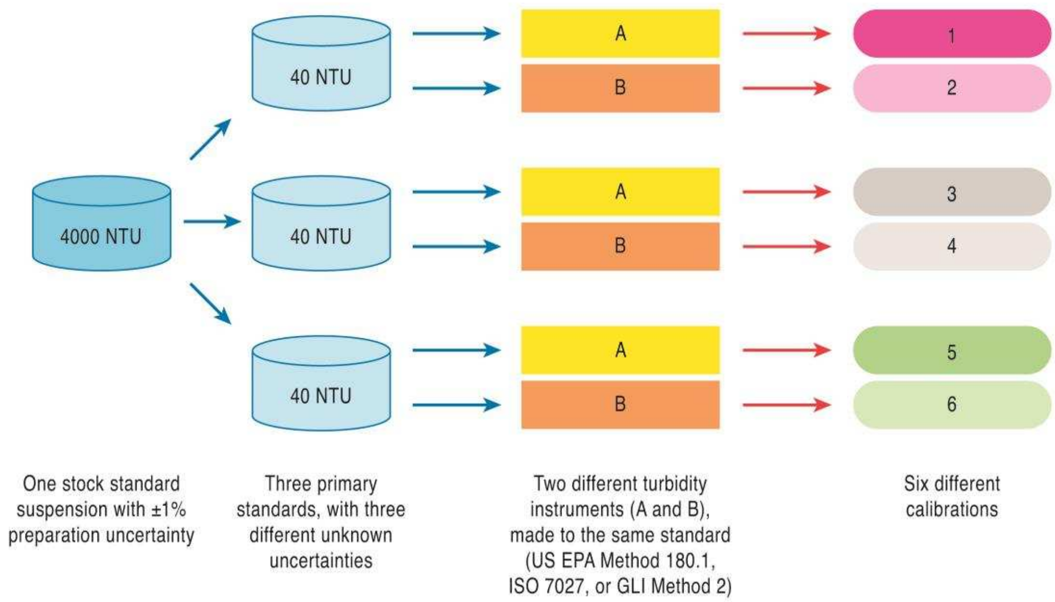

Figure 7. An example of the effect of indeterminate PSD due to identically defined but potentially physically dissimilar primary turbidity standards on the calibration of turbidity instruments. Results are further confounded by the variability in response between different instruments to the same PSD.

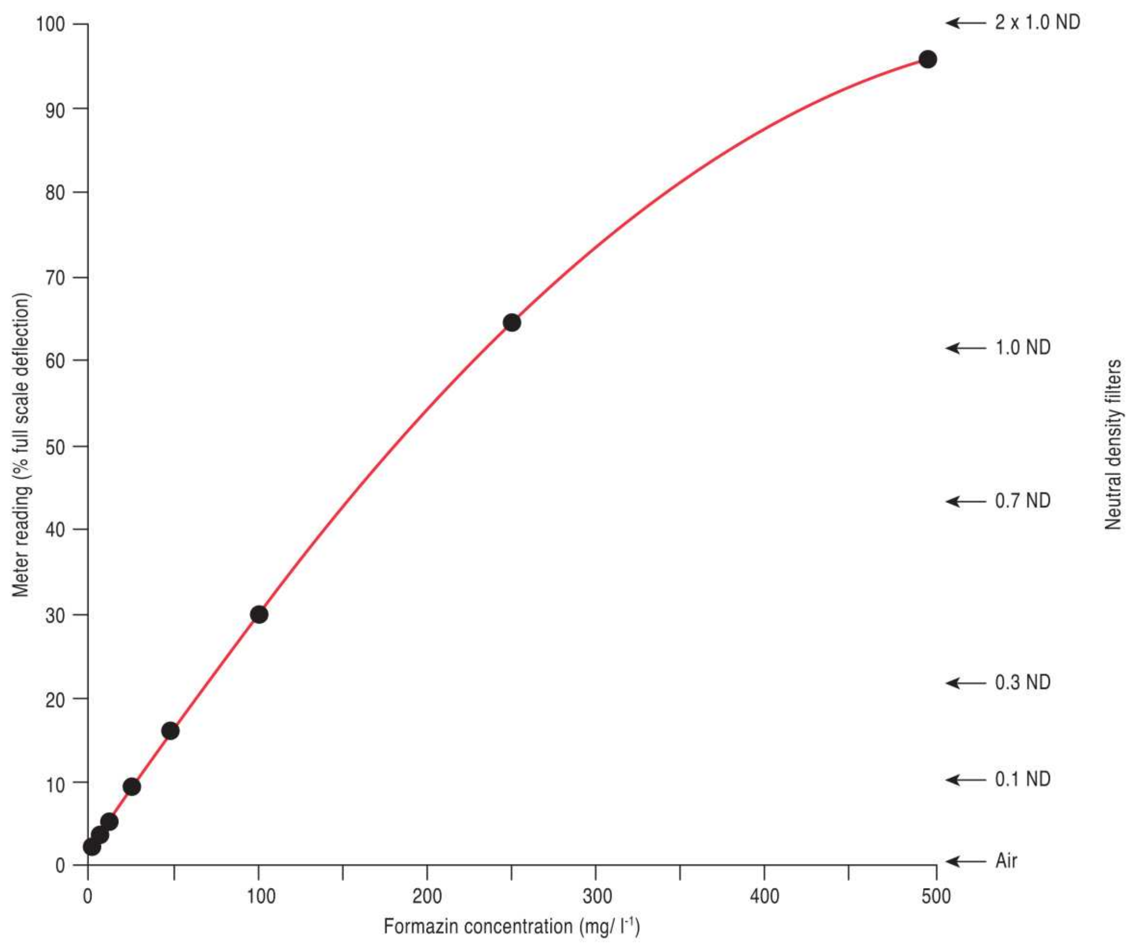

Figure 8. Laboratory calibration of a turbidity meter with Formazin standards. Meter readings of the neutral density filters used in the field are shown also (Finlayson 1985).

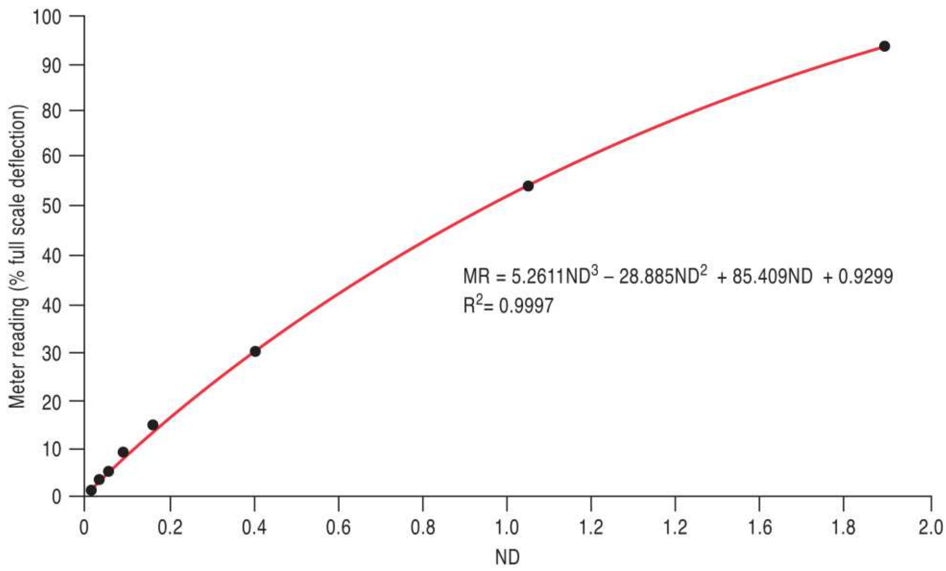

Figure 9. A reproduction of the data contained in Figure 8 showing the meter reading vs. the ND filter value (after Finlayson 1985). The ND value is equivalent to *d*, the optical density.