

The Role of Light Refraction in Passive Remote Sensing

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Introduction

- ▶ Passive remote sensing captures energy from natural sources for analysis.
- ▶ It provides valuable data for various fields.

The Nature of Light

- ▶ Light as electromagnetic waves.
- ▶ Refraction: Change in direction when passing through different media.

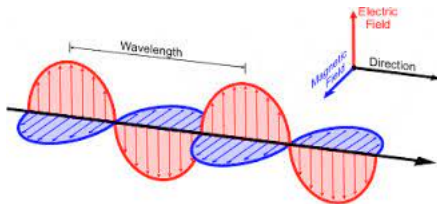


Figure: Light as a wave

Impact of Refraction

- ▶ Multiple refractions in Earth's atmosphere distort light paths.
- ▶ Consequences for remote sensing accuracy.

Atmospheric Refraction

- ▶ Objects displaced near horizon due to atmospheric refraction.
- ▶ Pronounced during sunrise and sunset.

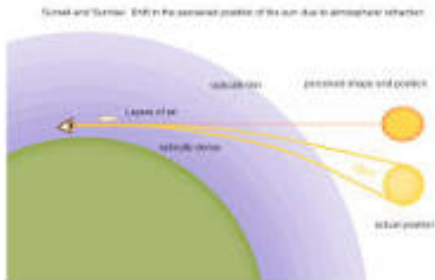


Figure: Refraction during Sunset

Water Bodies and Refraction

- ▶ Refraction at air-water interface affects measurements.
- ▶ Errors in depth determination and underwater feature mapping.

Correcting for Refraction

- ▶ Correction techniques using algorithms and models.
- ▶ Compensate for refraction effects during data processing.

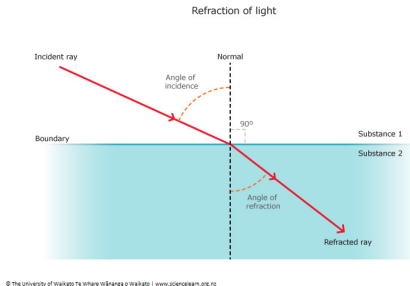


Figure: Diagram

Conclusion

- ▶ Light refraction is critical in passive remote sensing.
- ▶ Challenges can be overcome with correction techniques.
- ▶ Passive remote sensing contributes to a better world.