A Monte-Carlo based approach for estimating remote sensing reflectance uncertainty

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Objectives

- Quantify uncertainty due to atmospheric correction.
- Generate remote sensing reflectance uncertainty product.
- Characterize uncertainty with respect to potential drivers

Introduction

- Ocean color missions are subject to pre-specified uncertainty requirements.
- Requirements are borne out of guesswork
- Typical uncertainty estimation uses problematic comparison with in-situ data;
  - in-situ data sampling is potentially biased to easily accessible areas[1],
  - difficult to separate noise from in-situ and satellite measurements[2]
  - differences in sampling scale also confounding.[3]

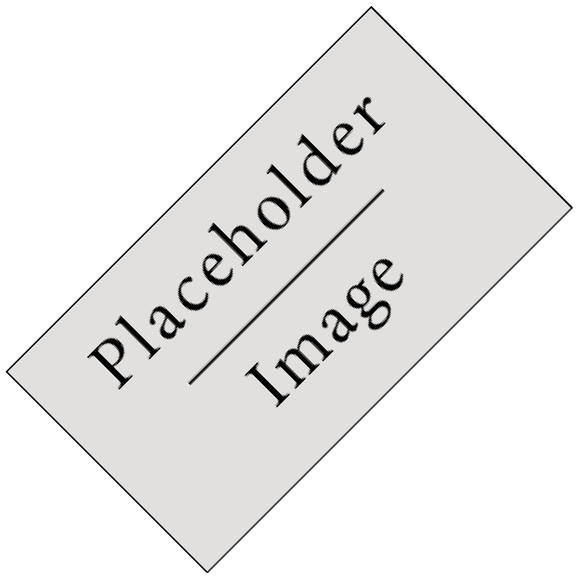

Figure 1: Figure caption

Materials

The following materials were required to complete the research:

- Curabitur pellentesque dignissim
- Eu facilisis est tempus quis
- Duis porta consequat lorem
- Eu facilisis est tempus quis

The materials were prepared according to the steps outlined below:

1. Curabitur pellentesque dignissim
2. Eu facilisis est tempus quis
3. Duis porta consequat lorem
4. Curabitur pellentesque dignissim

Important Result

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Mathematical Section

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$$E = mc^2 \tag{1}$$

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$$\cos^3\theta = \frac{1}{4}\cos\theta + \frac{3}{4}\cos 3\theta \tag{2}$$

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Methods

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Results

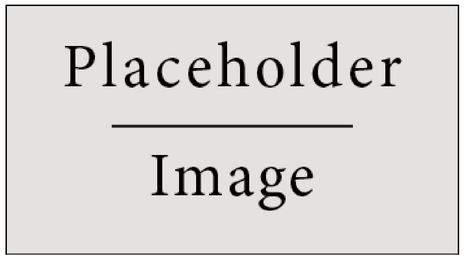

Figure 2: Figure caption

Nunc tempus venenatis facilisis. Curabitur suscipit consequat eros non porttitor. Sed a massa dolor, id ornare enim:

Treatments	Response 1	Response 2
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

Table 1: Table caption

Conclusion

Nunc tempus venenatis facilisis. **Curabitur suscipit** consequat eros non porttitor. Sed a massa dolor, id ornare enim. Fusce quis massa dictum tortor **tincidunt mattis**. Donec quam est, lobortis quis pretium at, laoreet scelerisque lacus. Nam quis odio enim, in molestie libero. Vivamus cursus mi at *nulla elementum sollicitudin*.

Additional Information

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- Curabitur pellentesque dignissim
- Eu facilisis est tempus quis
- Duis porta consequat lorem

References

[1] S. Bailey and P. Werdell, "A multi-sensor approach for the on-orbit validation of ocean color satellite data products," *REMOTE SENSING OF ENVIRONMENT*, vol. 102, no. 1-2, pp. 12–23, 2006.

[2] D. Toole, D. Siegel, D. Menzies, M. Neumann, and R. Smith, "Remote-sensing reflectance determinations in the coastal ocean environment: impact of instrumental characteristics and environmental variability," *APPLIED OPTICS*, vol. 39, no. 3, pp. 456–469, 2000.

[3] C. Hu, L. Feng, and Z. Lee, "Uncertainties of seawifs and modis remote sensing reflectance: Implications from clear water measurements," *REMOTE SENSING OF ENVIRONMENT*, vol. 133, pp. 168–182, 2013.

Acknowledgements

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