The Transiting Dust of Boyajian's Star

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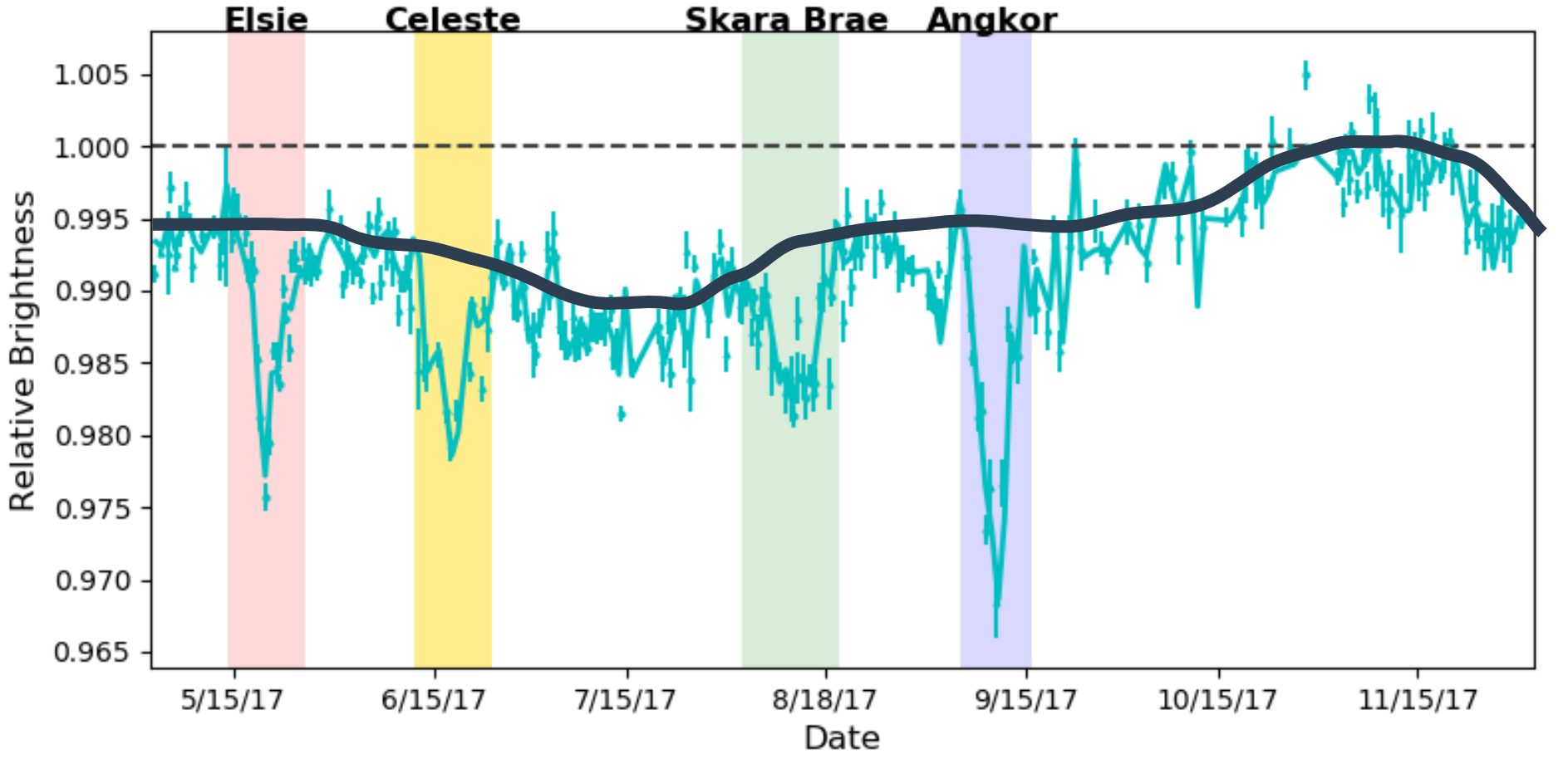
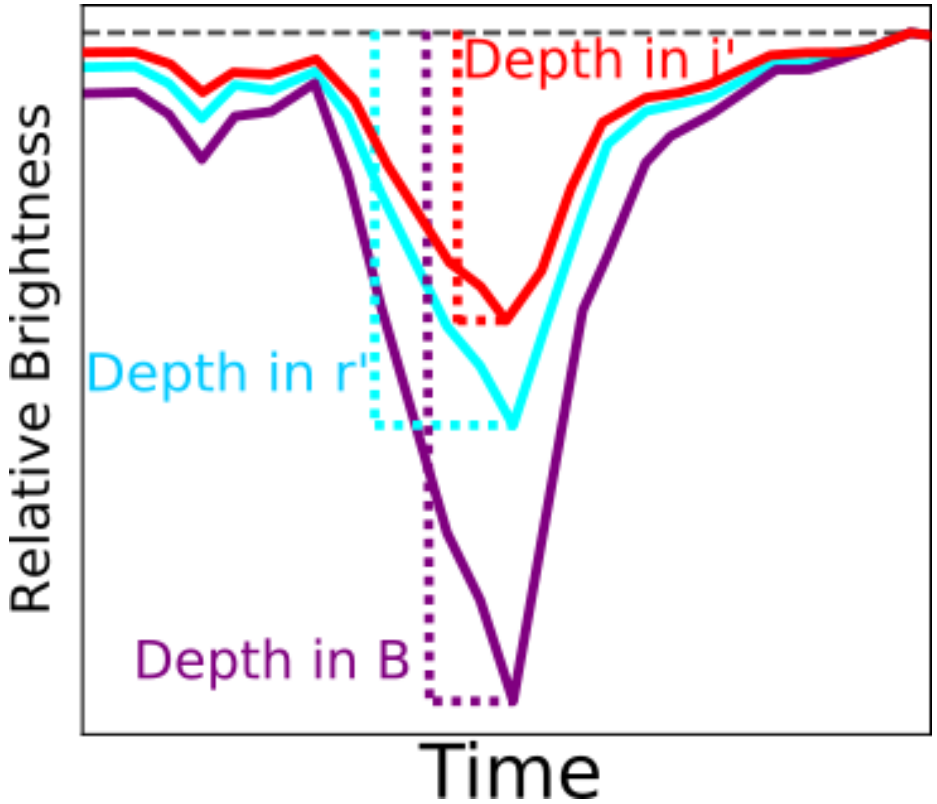
Thank you!

The Dips

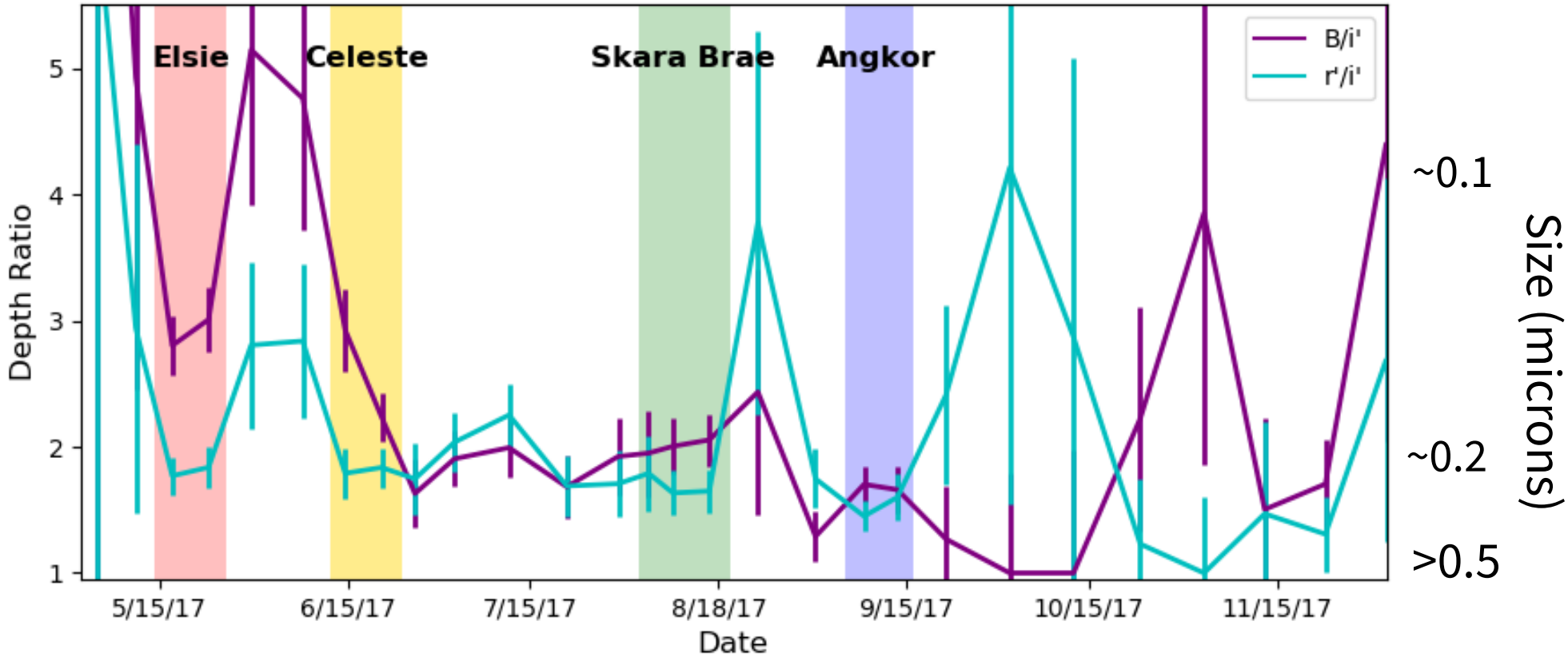

Elsie
Celeste
Skara Brae
Angkor
1.005
1.000
0.995
0.990
0.985
0.980
0.975
0.970
0.965
Relative Brightness
5/15/17
6/15/17
7/15/17
8/18/17
9/15/17
10/15/17
11/15/17
Date

The ‘Color’ of the dips



- We measure the ratio of the depth in blue (B) and the depth in red (r’) to the depth in the near-infrared (i’)
- This ratio depends on the size and composition of dust

Color of the Elsie Dip Family



What the Color means for Dust

- **The Dust Cloud is Extremely Complex**
  - Different kinds of dust are causing the dips than the secular dimming
  - Each dip is a different kind of dust
  - The secular dimming also is caused by dust of various sizes

- **Dust in the cloud is varying spatially, not in time**
- **All the different kinds of dust are also consistent with ISM dust**
  - ISM dust also comes in many kinds

What We Know

- The structure of the dust cloud is extremely complex
  - Some variation in the dust is produced
- Small Grain Size
  - Must be newly created

What We Don't Know

- Composition of the dust
- How the dust is being produced

Summary:

The dust cloud obscuring Boyajian's Star is very complex and made up of multiple kinds of dust.

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