

## Intellectual Merit Criterion

### Overall Assessment of Intellectual Merit

Excellent

### Explanation to Applicant

Krystal has an excellent educational and research background. She has a journal publication and I like her field of research on Soil.

## Broader Impacts Criterion

### Overall Assessment of Broader Impacts

Excellent

### Explanation to Applicant

I really enjoyed reading her personal statement. She has made a wonderful progress in her life. She has an incredible potential to contribute to society.

### Summary Comments

This is one of top three applications that I like NSF to really support. Krystal has great academic record and potential to contribute to society.

## Intellectual Merit Criterion

### Overall Assessment of Intellectual Merit

Excellent

### Explanation to Applicant

Strong skill set and background of field work (SARP, PROPHET 2016) makes her able to complete the work. Resources are adequate and documented. Will improve the CIMS/GC system and test rural vs urban, isoprene products ratios to NO<sub>x</sub>. Key chemistry to understand how SOAs, ozone, and other factors of poor air quality may develop. Novel application of the new device. It will give better precision, and maybe understanding of how PM<sub>2.5</sub> and ozone form; this has the potential to be transformative as it would suggest how to nudge atmospheric composition one way or another.

## Broader Impacts Criterion

### Overall Assessment of Broader Impacts

Very Good

### Explanation to Applicant

SOAs are critical to air quality and her work will propagate into making better forecasts and modeling, but not very clearly described. Standard academic outputs (papers etc). Outreach through a blog and through social media. Mention of mental health outreach but unclear.

### Summary Comments

Strong candidate, good training. Not a new tool, but potentially transformative work. Quite good use of web outreach, but no other outreach avenues to the public noted.

## **Intellectual Merit Criterion**

### **Overall Assessment of Intellectual Merit**

Excellent

### **Explanation to Applicant**

research in isoprene oxidation role in climate

## **Broader Impacts Criterion**

### **Overall Assessment of Broader Impacts**

Excellent

### **Explanation to Applicant**

initiated own outreach program using social media

## **Summary Comments**

list of award and honors, high level of undergraduate research, and publication