

Review of Introducing the Video In Situ Snowfall Sensor (VISSS)

Reviewed by Charles Helms

The authors have satisfactorily addressed all of the comments I raised in my previous review and I feel like this manuscript is ready for publication. That said, there are a few very minor suggested corrections (almost exclusively typos) that I have included at the end of this review.

Following up to the authors' response to my comment on the PSD and slower falling particles: Thank you for the explanation regarding the interpretation of the PSD not as the number of particles that fall through the volume in a given time but as the average number of particles in a volume at any given time. My work with the PIP and other instruments has mostly focused on the measurements themselves rather than the resulting PSD. Not sure about the PIP subsampling, but it's not particularly relevant to the manuscript anyway. That said, it does seem odd that the PIP data would be subsampled given the goal is the average number of particles in the volume at any given time; perhaps there was some other reason I'm not aware of (or perhaps the person who told me that the PIP PSD used the subsampled data was mistaken).

Minor Comments:

Line 198: "This allow to identify..." should be something like "This allows us to identify..." or "This allows the algorithm to identify..."

Line 199: "We found that this method gives already stable results..."; suggest removing "already"

Line 205: "campaign" should be plural

Line 218: "...but this would not allow to generally..."; add "us" (or similar word) after "allow"

Line 262-263: The authors might also want to mention how the tracking is initialized when there are no previously tracked particles (e.g., at start up). I assume this is taken care of either alongside the camera alignment steps or via some default value, but it might be a good idea to state things explicitly.

Line 308: "...but the offset is this time negative..."; suggest removing "this time"

Line 423: "...probably related to problems of the PIP image processing."; the wording is a bit awkward, suggest something like "probably as a result of the PIP image processing implementation" or "probably as a result of limitations in the PIP image processing implementation"

Line 449: "When exploiting also the varying orientations during tracking" sounds awkward. Suggest something like "When the varying orientations are taken into account"