The paper presents a method for estimating the depth and extent of floods from SAR imagery. Since SAR data are already widely used in the literature for flood monitoring, it would be helpful for the authors to highlight the differences between their approach and existing ones, clearly highlighting the strengths and any limitations. In addition, it is suggested that the authors describe the method in greater detail and clarity so that it can be easily understood and used by a wider audience. The following are additional specific suggestions for improving the quality of the work:

Reply: **Thank you for your valuable feedback. We appreciate your suggestion to provide a clearer comparison between our method for estimating flood depth and extent from SAR imagery and existing approaches. We also acknowledge the need to describe our method in greater detail and clarity to ensure it is easily understood and usable by a wider audience. It will be updated in the revised manuscript.**

Line 16: It would be good to make explicit what is meant by the term "lower" and also include numerical performance results for clarity. This would help to better understand the effectiveness of the proposed method.

Reply: **The numerical performance results are presented in Section 4.2.3 (Validation of Results), where the RMSE for the Trend Surface Analysis (TSA) technique is reported as 0.805, compared to 5.23 for Flood Water Depth Estimation Tool (FwDET) Technique. To enhance clarity and address your suggestion, abstract from line 15 is improved like this "Water levels estimated at river gauge stations using the TSA technique are validated against real-time field measurements and compared with results derived from the Floodwater Depth Estimation Tool (FwDET). When evaluated relative to gauge station water levels, the TSA technique demonstrates a root mean square error (RMSE) of 0.805, significantly lower than the RMSE of 5.23 observed for the FwDET".**

Lines 40-49: It is recommended to revise the text and punctuation in these lines in order to improve fluency and clarity. Some sentences are indeed a bit complex and could benefit from restructuring.

Reply: **Thank you for valuable suggestion. We have addressed your comments and will update in manuscript. The revised text now reads as follows (lines 40-49): "Additionally, cyclone-prone states such as Odisha, Andhra Pradesh, West Bengal, and Gujarat have necessitated the preparation of Flood Hazard Zonation Atlases, collectively accounting for 10 million hectares of flood-affected areas. This highlights the critical need for real-time flood mapping and monitoring, the implementation of automated flood mapping techniques, and the generation of accurate spatial flood depth information to support disaster management efforts in these regions.**

Satellite data and flood inundation information are widely used for near real-time mapping and monitoring of flood events (Rizwan Sadiq et al., 2022). Ensuring accuracy in flood extent and depth is critical, as this information is essential for effective relief and rehabilitation efforts in the field."

Lines 110-111: It is necessary to better specify what is meant by "limit within the active channel." This should be clarified to avoid ambiguity and allow a more precise understanding of the method.

Reply: **Thank you for the suggestion. Statement in lines 110-111, 'Additionally, FwDET's floodwater depth accuracy is poor in the case of active channels,' has been removed to avoid confusion during reading. However, the following line, 'To overcome this limitation, this paper introduces a novel method called Trend Surface Analysis (TSA) to improve the accuracy of flood depth estimation,' is intended to emphasize the novelty of the Trend Surface Analysis (TSA) method in enhancing flood depth estimation accuracy."**

Line 117: The case studies should be described in more detail, including information such as the size of the watersheds and the physical and hydrological characteristics of each. In addition, it would be helpful to add a picture showing the watersheds in relation to the closure sections to enhance visual understanding of the context.

Reply: **Thank you for the feedback. The TSA technique used in this study is not dependent on the watershed but rather on the slope and height of the terrain. The method relies on how water interacts with the landscape based on the terrain's incline, which directly influences the accuracy of flood depth estimation.**

Line 133: It is important to explain the reason why satellite images with different spatial resolution (e.g., CRS and MRS) were used. Also, it would be helpful to clarify what the temporal resolution of acquisition of these images is, especially in relation to the five types of spatial resolution used.

Reply: **Satellite images from multiple sensors are acquired based on their orbital coverage over the study area during the flood event. To ensure higher observation frequency, data from CRS/MRS sensors is utilized when available. The layers selected from these sensors are independent of the temporal resolution.**

Line 142: It would be helpful to know how many level measurements were extracted from the CWC site. It is suggested that these measurements be reported in a graph or table for clearer and more immediate visualization.

Reply: **In this study, we employ a single water level measurement from each CWC river gauge site, corresponding to the exact date and time of the satellite acquisition for the study area. For instance, in the Andhra Pradesh study area, satellite imagery was captured on 28th July 2023 at 18:00 hrs. At this precise time, the CWC team recorded the water level measurements for the relevant gauge sites in the study area. A table has been created as per suggestion, and it will also be updated in the manuscript.**

S.No	Water Gauge Station Name	Field Measured Water Levels
ANDHRA PRADESH		
1.	Kunavaram	41.02
2.	Koida	39.72
ASSAM		
1.	Beki Rd Bridge	44.92

2.	Pangladiya NT Road Xing	52.84
3.	Pandu	47.25
4.	Guwahathi	48.19
BIHAR		
1.	Baltara	34.9
2.	Kahalgaon	31.08
3.	Azamabad	30.54
4.	Kursela	29.98
UTTAR PRADESH		
1.	Dabri	137.18
2.	Fathegarh	137.78
3.	Kannauj	125.67
4.	Bewar	138.32

Lines 155-185: The authors should explain in more detail the workflow illustrated in Figure 3. In particular, it would be useful to supplement the figure with a textual description that would allow even readers who are not experts in the field to understand the methodological choices made, as well as how the process was replicated.

Reply: **We appreciate the reviewer's suggestion to provide a more detailed explanation of the workflow presented in Figure 3. We will update in the revised manuscript.**

Line 274: It is recommended that the Landsat images used to validate the method be introduced in the paragraph devoted to the data used. This would allow for better contextualization of the data and their use in the validation process.

Reply: **Thank you for your helpful suggestion. We will include details in the revised manuscript about the source of the Landsat images, their relevance to the study, and how they were used in the validation to ensure better clarity.**

Line 275: It would be appropriate to run the validation on a larger number of dates and create a confusion matrix comparing water and non-water areas. This would allow for a more accurate assessment of method performance. In addition, it would be useful to calculate other performance metrics such as accuracy, precision, and recall to provide a more complete evaluation.

Reply: **Thank you for your valuable feedback. The primary focus of this paper is on flood depth estimation. As such, the automatic tile-based segmentation method is not the central point of this study.**

Discussion: The discussion section lacks a comparison with other work in the literature. Authors should highlight the strengths of their method compared to what

has been proposed before, pointing out any significant innovations or improvements.

Reply: **Thank you for feedback. We will update in the revised Manuscript.**