



The Bureau
of Meteorology

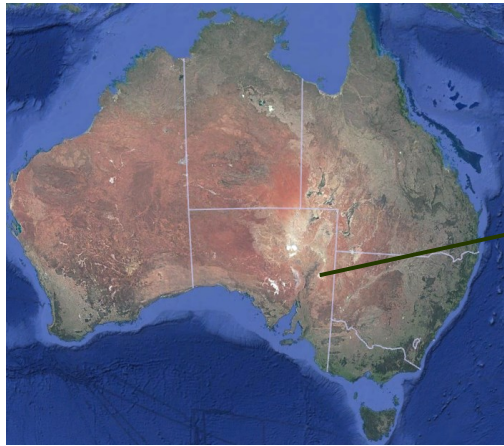
Flood Inundation Mapping Using the HAND Approach and LiDAR DEM

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April 4, 2025

Flood Inundation Mapping (FIM)

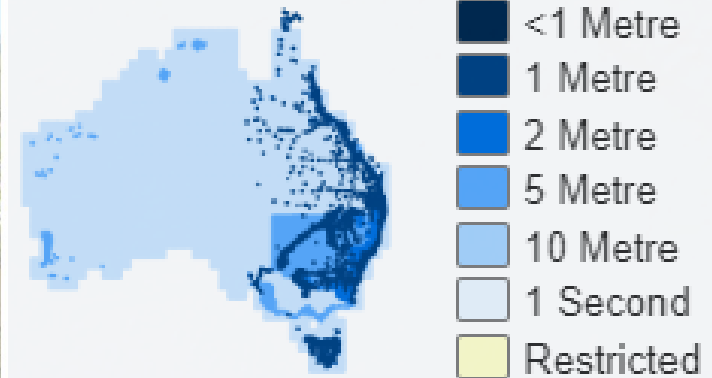
Height Above Nearest Drainage (HAND) approach



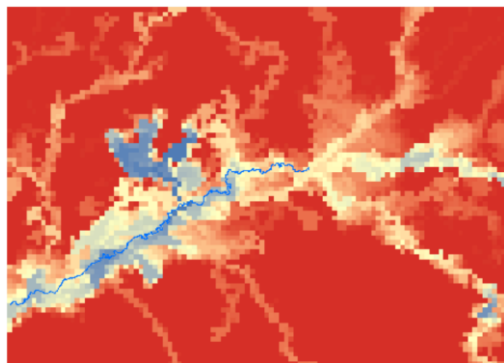
Bourke (15th November 2022)



Airborne LiDAR DEM

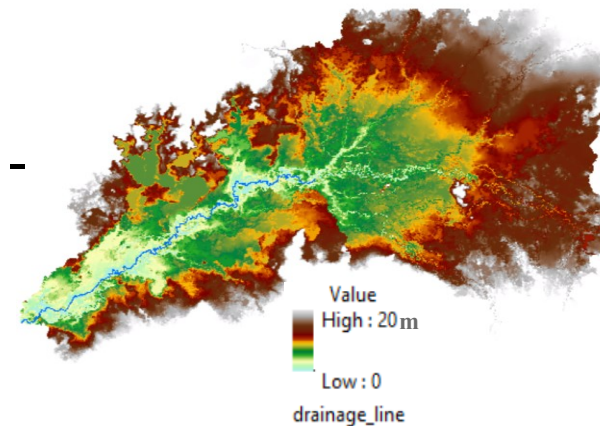


Water Level

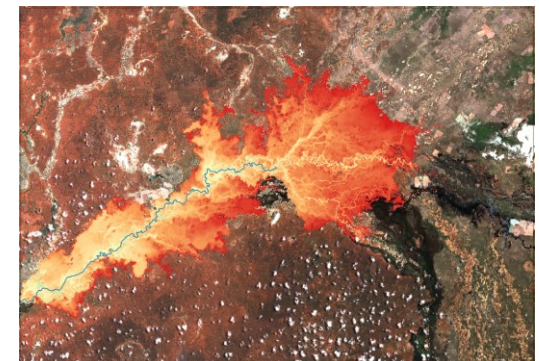


Value
High : 7.6 m
Low : 0

HAND



FIM



Flood depth
0.1 15 m



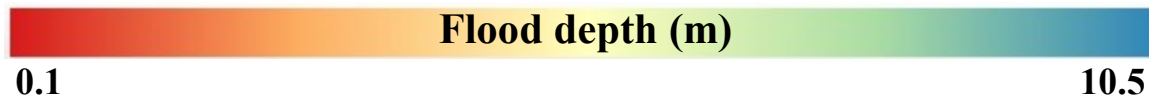
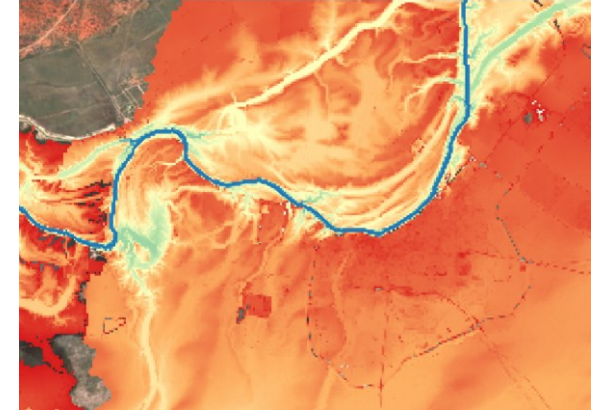
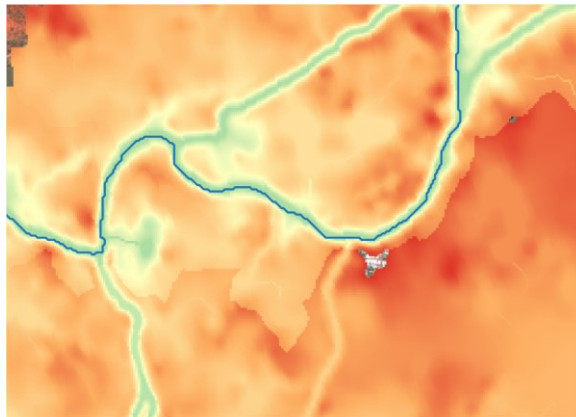
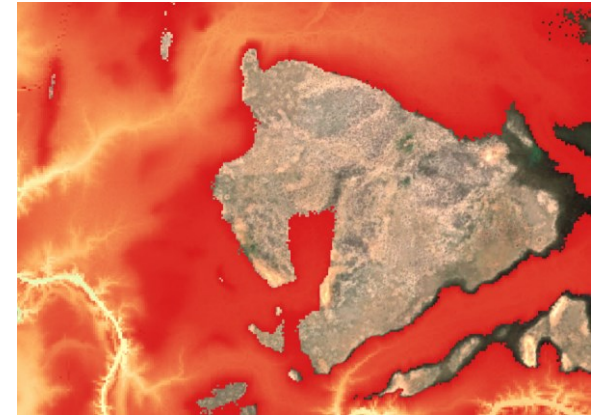
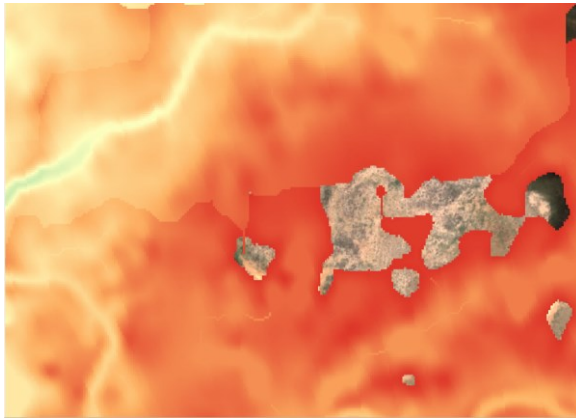
Leveraging High-Resolution Data for Better Flood Insights

HAND with LiDAR vs. GeoFabric – Bourke town (26 November 2022)

Geofabric

Sentinel 2

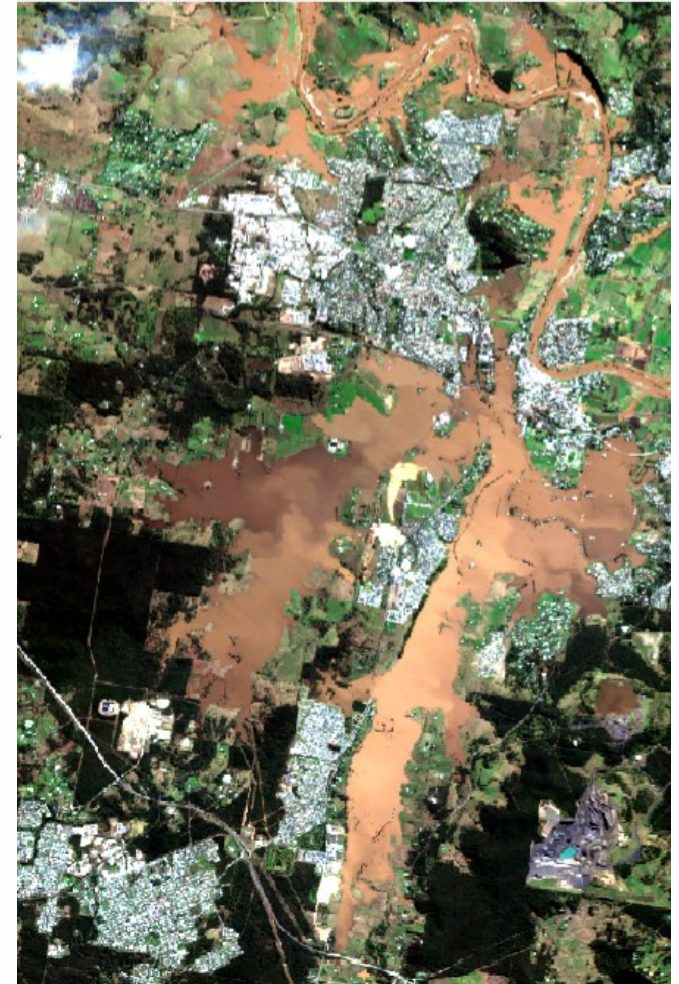
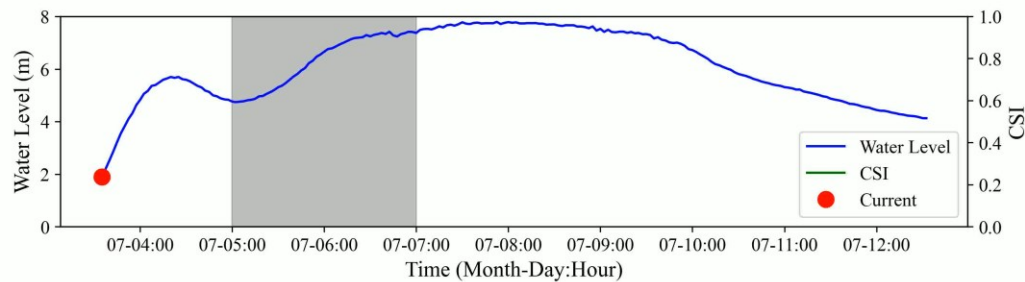
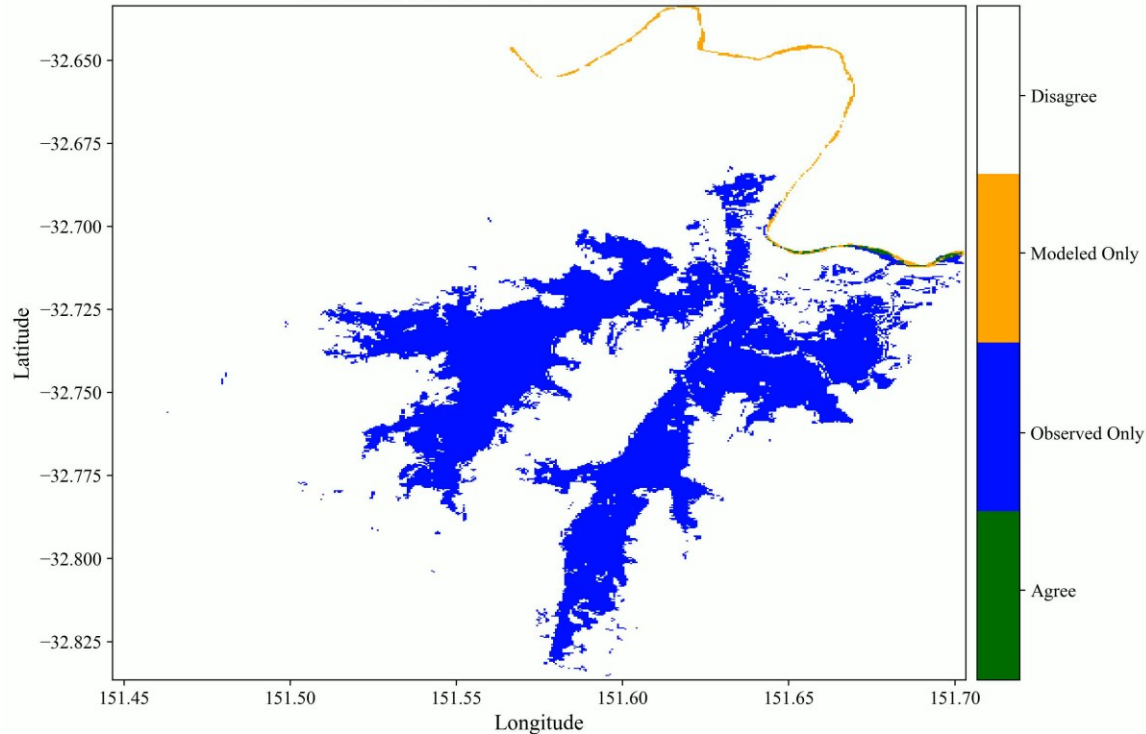
LiDAR



Leveraging High-Resolution Data for Better Flood Insights

HAND with LiDAR– Wallis Creek, NSW(5-6 July 2022)

Date: 2022-07-04, Hour: 00:00, Water Level: 1.90m, CSI: 0.0047



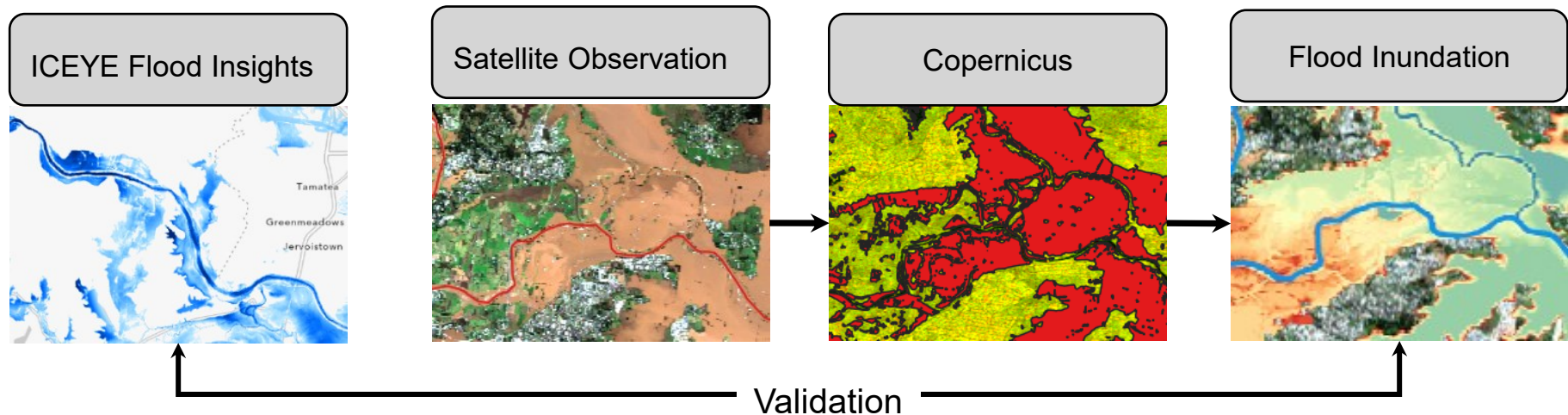
Sentinel-2 (8 July 2022)



Conclusion and Future Directions

Next Steps for HAND and Flood Mapping

- Finding: LiDAR + HAND outperformed GeoFabric DEM.
- Limitation: HAND overestimates in flat regions.
- Future Plan: Integrate remote sensing to refine HAND in flat areas.





Thank you!

