

Abstract Submitted  
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**High Altitude Balloon Real-time Landing Prediction** ROBERT ECKEL, Weber State University, HARBOR TEAM — With the success of Weber State University's high altitude balloon program, HARBOR, missions become more complex and payloads of higher value, the importance of being able to recover the payload quickly after landing has increased. By expanding the functionality of Weber State's *Multi-Sensor Array*, combined with an amateur radio terminal node controller, we will be able to accurately predict the landing zone while in flight. Analysis of previous flights indicates that velocity vector projections on a plane tangential to the earth's surface remain fairly constant at any given altitude during the ascent and descent. By differentiating position data from GPS and other instruments during the ascent, the descent profile can be integrated to produce an accurate landing position. This prediction is then able to be sent down wirelessly over existing ham radio infrastructure to plot the predicted landing zone in navigation and mapping software in real time.

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