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| **Continental-scale mapping of supratidal and coastal floodplain forests of Australia** |
| Australia’s coastal wetlands include a diversity of vegetation structures and compositions across intertidal and supratidal elevations. While there have been significant recent advances in continental-wide information on mangrove and saltmarsh, neighbouring supratidal forests represent a significant missing link in knowledge of the distribution of coastal ecosystems in Australia. Without the ability to classify supratidal forests using remotely sensed imagery, it is currently not possible to identify where this ecosystem exists across Australia or to track changes over time, including increases in extent from restoration projects. Here, we present the first continental-scale mapping of supratidal and coastal floodplain forests of Australia. This approach is based on emerging conceptual understanding of characteristics and biophysical drives along the multiple coastal settings around the country. We consider supratidal and coastal floodplain forests broadly defined by their a) position within the coastal landscape and b) vegetation structure. We utilise Earth observation data, primarily from the Landsat archive, as well as globally available products accessed and analysed using Geoscience Australia’s Digital Earth Australia (DEA) platform. For identifying position in the landscape, we leverage existing products such globally available elevation data, Water Observations from Space (WOfS; Mueller et al., 2016) and the Intertidal Extent Model (ITEM; Sagar et al., 2017), together with information on highest astronomical tides and storm surge across the continent. For vegetation structure, we leverage existing products such as DEA Mangroves (Lymburner et al., 2020), Australian Saltmarshes (Murray et al., in prep), Tidal mudlfats (Murray et al., 2019), and Woody Cover Fraction (Liao et al., 2020). The output products of this mapping approach provide information on the confidence associated with the presence of supratidal and coastal floodplain forests in the landscape.We present first estimates of supratidal and coastal floodplain forest extent across Australia. Field measurements and associated validation data demonstrate strong agreement with the supratidal and coastal floodplain confidence layer. These mapping products will benefit a range of end-users, including Federal and State/Territory Government portfolios responsible for monitoring and managing coastal wetland resources across Australia. In addition, this information will assist regulators and project developers of blue carbon projects to better understand coastal wetland extent and restoration opportunities via new Blue Carbon methods under Australia’s Emissions Reduction Fund. |