This paper presents an extensive review on compound flooding, their analyses methods, geographical spread of the literature analyzing compound floods, current practices and challenges. The paper is organized. A few technical things are missing. Further, a few updated literatures are missing. Focusing on the above, below I summarize my reviews on the manuscript:

1) Figure 1 (a–b): very simple schematics is shown contributing pluvial and fluvial floods. The contribution from groundwater/baseflow in runoff generations are not shown. Also, there is no schematics for runoff generation mechanisms, such as Hortonian overland flow and the saturation excess overland flow that potentially controls runoff mechanisms.
2) Lines 143–148: All these examples show cases from the US. The review should have global coverage, including low-latitude and developing countries that are more vulnerable to such natural hazards due to low adaptive capabilities.
3) Lines 158-163: Guan et al. (2023) have presented a synthesis paper on compound pluvial-fluvial model and highlighted the importance of including damage models for risk management.
4) Lines 257-259: A multivariate storm event with peak and volume also qualifies for compound event as they are tied together with dependence framework. Refer to Leonard et al. (2014) for details.
5) Line 320: its seasonal shifts rather than ‘weather seasons’.
6) Line 323: Fluvial flooding also depends on topography, urbanization controlling runoff and infiltration mechanisms due to impervious surfaces, soil texture and structures, catchment size.
7) Lines 330-339: Infiltration excess process - mostly results due to limited hydraulic capacity of drainage systems, which act as a weir or orifices, depending on the water depth surrounding the system. The urban flood duration depends on capacities of drainage systems, infiltration capacities of soil and evaporation of catchment & runoff volume. Refer to Mark et al., (2004).
8) Line 362: Groundwater flooding, ‘a temporary rise’.
9) Line 396: The role of catchment wetness for flood generation process was shown for a large tropical (Ganguli et al., 2019) and mid-latitude (Merz et al., 2018) catchments.
10) Lines 397-400: Here relative humidity plays a role. Extreme dry heat beyond certain temperature often leads to moisture limitations/drying, leading to dry spell. Refer to Fig. 2 in Ganguli and Merz (2024).
11) Lines 400-402: Wildfire often triggers landslides due to changes in mechanical properties of the soil --> debris flows and flash floods. The complete event chain should be described. Refer to (Belongia et al., 2023; Monga and Ganguli, 2024).
12) Lines 509-513: South Asia in general and India as an example, is underrepresented here. Although a few recent studies have been available recently. For example, (Ganguli et al., 2019; Ganguli and Merz, 2024; Khatun et al., 2022; Mohanty et al., 2020).
13) Lines 518-520: A few journals were not included, which regularly publishes articles on compound flooding, Geophys. Research letters, Earth's Future, Environmental Research Letters, NpJ Climate & Atmospheric Sciences.
14) From page 35: Line 627: Khatun et al. (2022) analyzed joint pluvial-fluvial compound flood extremes along the Mahanadi catchment, which is close to coast.
15) Page 37: lines 679–688: pluvial–fluvial flood drivers are well established for Mahanadi River basin catchments (Ganguli et al., 2019; Khatun et al., 2022) and three geographically diverse flood-prone coastal catchments in western and eastern catchments of India (Mohanty et al., 2020).
16) Line 836: … German dyke breach led to a compound inland pluvial – damming/…
17) Page 44: Line 860: Lucey and Gallien (2022) showed that although annual maximum sampling is commonly used for characterizing multivariate events, annual maximum sampling may substantially underestimate marine water levels for extreme events.

18) Lines 872: Using a time-dependent statistical model on tide gauge data along U.S. and Pacific Basin coastlines, Sweet et al., (2024) showed that extreme coastal water level probability distributions shift on an annual basis, with shift higher & lower with tide cycles, climatic pattern & SLR. Likewise, Hague and Talke (2024) showed that changes in tidal amplitudes generally have a much larger impact on flood frequencies than equivalent share of changes in storm surge magnitudes.
19) Line 880: … combination of heavy precipitation events, SLR, tidal cycles, and …
20) Line 978: Heinrich et al., (2023) analyzed the joint occurrence of extreme river discharge events and storm surges in northern and central Europe. Likewise, in line 988: to identify rivers that show a higher number of compound flood events than expected by pure chance, Heinrich et al. (2023) utilised a Monte Carlo approach.
21) Line 1002: at a standard significance level
22) Lines 1002-1006: they can describe event coincidence analyses, including precursor coincidences.
23) Line 1051: However, reanalysis records has their own limitations for not adequately capture several variables, such as specific humidity, windspeed and their directions, including extremes are often under-represented.
24) Lines 1305 and beyond: recently, Feng et al. (2024) developed multi-scale coupling framework within the Energy Exascale Earth System Model (E3SM), integrating global atmosphere and land with interactively coupled river and ocean models using variable meshes to simulate tide and storm surges during the CF events.
25) Page 64: Recommendation 5: they should discuss about an ensemble forecast systems, considering river-ocean interactions, including coastal backwater effects. Refer to my comment above.
26) Table A.1 include recent references and as stated earlier in general Asia and Australia are under-represented in their write-up. Whole focus is on either US and Europe.

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