where lgn_t is the probability of an infectee's receiving clinical con rmation t days since being infected (Lauer et al., 2020). Note that in Eq. (1), C records with a 14-day extension need to be used to estimate the I_t on a given day. Therefore, we use the COVID-19 records until July 15 to study the period up to July 1. The conversion from I_t to R_{0t} is given by Eq. (2),

$$R_{0t} = I_t / \sum_{\tau=t-N}^{t-1} I_\tau g_{t-\tau} \quad (2)$$

where g_t is the probability of an infector's infecting other people on the day t since being infected.

2.3. Invalid R_0 value trimming

Non-local community spread can occur in two situations in a given response unit: before the community spread starts, or when a large

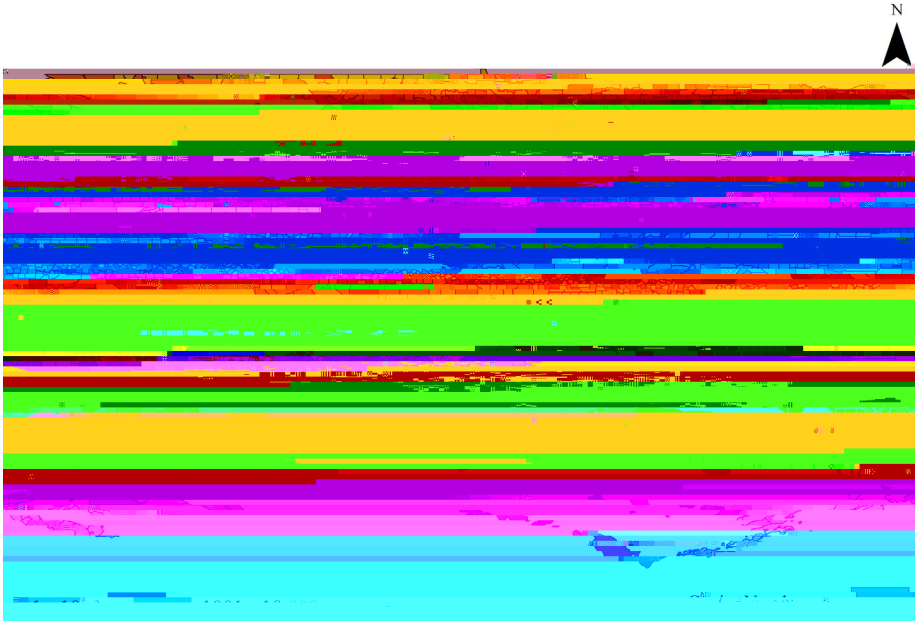

Fig. 4. Accumulated ood claims from 2010 to 2019 at the county level.

risk. Although the correlation between the historical ood risk and recent COVID-19 risk is low, areas at high risk for both exist. As shown in Fig. 3, the US COVID-19 capitals include the west coastal, south coastal, and southeastern coastal counties, and the south great plains. Fig. 4 shows the ood risk is relative higher along the southern and eastern coasts, and in areas along the Mississippi River and its main branches. Consequently, the compound risk is equal or above the high level (for both) along the southern and eastern coastal counties and some part of the Mississippi River, as shown in Fig. 5.

4. Discussion

We present a prompt tool to estimate the compound risk posed by ooding and COVID-19. The areas of high risk for both types of hazards are concentrated along southern and eastern coastal states, and along the Mississippi River and its main branches. We also note that although the northeastern coast used to be the capital of COVID-19 and is also at high risk for ooding, the compound risk is no thigh because the COVID-19 risk is currently low. The latter can be attributed to the effective and

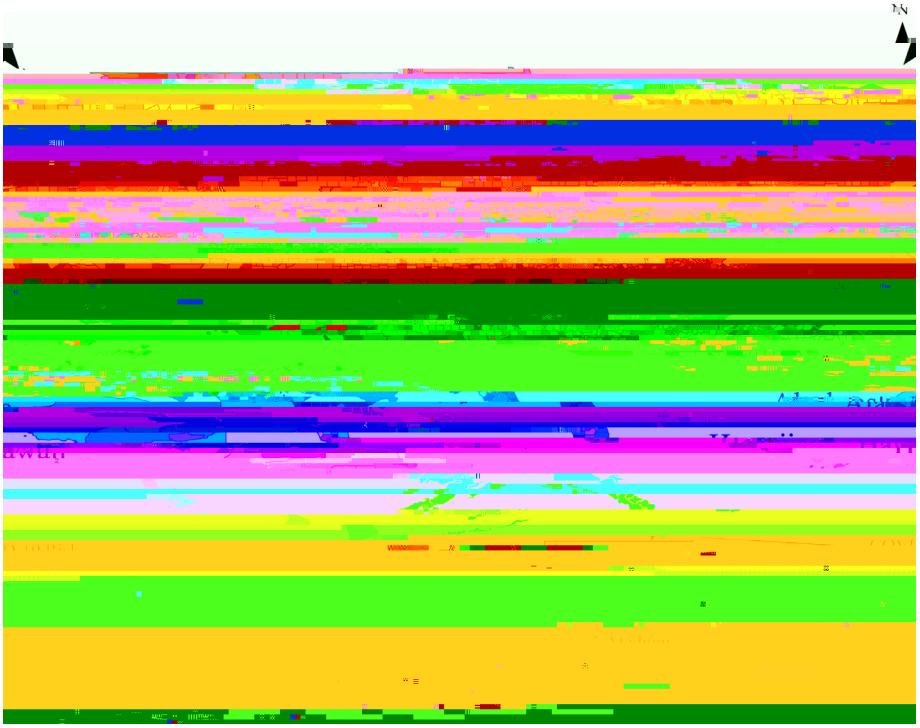

Fig. 5. The compound risk of ooding and COVID-19.