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Flooding Hazard Maps of Different Land Uses in Subsidence Area

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This study aims on flooding hazard maps of different land uses in the subsidence area of southern Taiwan. Those areas are low-lying due to subsidence resulting from over pumping ground water for aquaculture. As a result, the flooding due to storm surges and extreme rainfall are frequent in this area and are expected more frequently in the future. The main land uses there include: residence, fruit trees, and aquaculture. The hazard maps of the three land uses are investigated.
The factors affecting hazards of different land uses are listed below. As for residence, flooding depth, duration of flooding, and rising rate of water surface level are factors affecting its degree of hazard. High flooding depth, long duration of flooding, and fast rising rate of water surface make residents harder to evacuate. As for fruit trees, flooding depth and duration of flooding affects its hazard most due to the root hypoxia. As for aquaculture, flooding depth affects its hazard most because the high flooding depth may cause the fish flush out the fishing ponds. An overland flow model is used for simulations of hydraulic parameters for factors such as flooding depth, rising rate of water surface level and duration of flooding. As above-mentioned factors, the hazard maps of different land uses can be made and high hazardous are can also be delineated in the subsidence areas.