Supplementary Material

File S1

Based on the publication by Diakakis et al. (2020) and the article titled *'Proposal of a Flash Flood Impact Severity Scale for the Classification and Mapping of Flash Flood Impacts,'* which introduces the Flash Flood Impact Severity Scale (FFISS), this supplementary material offers a comprehensive overview of the scale's categories and the corresponding severity classes of impacts resulting from flood events.

The scale is described in detail below:

Impacts on the built environment

Class	Description
I	Yard/Garden/Piloti suffer inundation on individual buildings. Inundation occurs of road or sidewalk surface. Low water crossings are flooded. No structural damages appear on any infrastructure or individual buildings.
II	Flooding limited to basements. Only ground-based equipment and furniture affected. Underground passage/traffic lights out of order. Culverts and sewerage affected or blocked. No structural damages appear on any infrastructure or individual buildings.
III	Ground floors suffer flooding affecting only ground-based household furniture or equipment or floors and floor tiles. Absorbed moisture on walls. Basement flooding affects higher positioned equipment or furniture, central heating unit, and relevant equipment/boiler. Roads not passable due to inundation. Terminal stations flooded. No structural damages appear on any infrastructure or individual buildings.
IV	Ground floor flooding affecting higher positioned equipment or furniture. Yard walls and fences suffer structural damage. Traffic lights and road signage suffer damages. Single span bridges inundate. Railway lines not passable due to inundation or debris. Bridges suffer damages at railing installations, Telecommunication networks interrupted/power lines.
V	Damages on wall coverings/plaster/veneer/false ceilings and walls, Garage doors, window frames and floor tiles/1st floors suffer flooding. Roads suffer damages due to asphalt surface or foundations scouring/Levees scoured/Artificial, reinforced concrete (RC) river banks suffer damages/Water & sewerage mains break.
VI	Structural damage visible, subsidence or deformation of building elements. Roads together with their foundation suffer complete destruction/Small footbridges collapse/ Rail lines suffer damages/Levees break.
VII	Partial structural damage of the building, deformation of supporting elements/Buildings made of wood or stone collapse
VIII	Complete collapse of RC or metal buildings. Single-span bridges suffer complete collapse/Damages in RC constructions of ports, docks/Partial damages in elements of large buildings (e.g. industrial), power plants, refineries, nuclear plants/Multi-span bridges suffer partial collapses.
IX	Large building (e.g. industrial) complete collapse. Multi-span bridges suffer complete collapses.
X	Large dams break/Significant parts of large power plants, refineries, nuclear plants suffer complete collapse

Impact on natural environment

Class	Description
I	Vegetation debris (leaves) drifted by water. Agricultural plots suffer minor inundation. No cultivated plants destroyed.
II	Low vegetation including ground, herbaceous plants, with no persistent woody stems, vegetables and reeds are bent or uprooted or destroyed. Trash spread in the watercourse.
III	Bushes (with persistent woody stems) are uprooted. High rising ground plants (> 0.5 m) Beehives get transported or flooded
IV	Small tree branches break. Fruit trees or olives destroyed (or partly destroyed). Animals carried away or injured. Earth material eroded or deposited at locations along or over the river banks at a depth less than 0.5 m.
V	Small trees uprooted (< 3 m)/Livestock in confined spaces drowned/Liquid pollutants spread locally (e.g. H/C from house petrol tanks). Earth material eroded or deposited at locations along or over the river banks at a depth between 0.5 and 1 m.
VI	Free-range animals killed/drowned. Liquid pollutants (e.g. H/C) spread locally (e.g. from gas stations, fuel carrying vehicles)/Earth material eroded or deposited at locations along or over the river banks at depth less than 3 m
VII	Large (> 3 m) trees uprooted. Large planted trees uprooted. Earth material eroded or deposited at locations along or over the river banks at depth >3 m/River course changes/small landslides.
VIII	Liquid or solid pollutants spread in water bodies (surface or groundwater) not only locally.
IX	Large Landslides are triggered by erosion/Temporary dams created by landslide earth materials.
X	Major pollution episode. Major source of pollutants (e.g. from chemical factory/nuclear power plant) spread in surface water bodies, air or groundwater.

Impacts on man-made mobile objects

Class	Description
I	Very light and small objects (e.g. carton boxes) get transported.
II	Light objects including flower pots, small trash bins, light building materials and others that can be lifted by a person get transported by floodwaters.
III	Heavy objects get transported by floodwaters including furniture and mobile objects of similar size, motorbikes, large trash bins and others that cannot be lifted by a single person.
IV	Cars and SUVs/Large tanks are moved by floodwaters.
V	Vans get transported by floodwaters.
VI	Minibuses, containers get transported.
VII	Buses, tractors, small aircrafts or helicopters.
VIII	Large trucks, bulldozers get transported.
IX	Train cars get transported.
X	Large passenger aircrafts get transported.

Impacts on human population

Class	Description
I	People notice minor flooding. No change in everyday activities and commuting.
II	Daily commute/everyday activities affected for the duration of flooding.
III	Daily commute/everyday activities halted completely for the duration of flooding and beyond.
IV	Evacuation needed at some places.
V	Rescues needed/take place at some locations/Entrapments occur due to the flood
VI	Light injuries occur, including shallow cuts or abrasions, sprains, bruises, skin lesions, minor burns and other non-incapacitating and non-life-threatening injuries.
VII	Serious incapacitating injuries occur including concussions, fractures, internal injuries, severe burns, deep lacerations, severe cuts, severe general shock, and health conditions (e.g. heart attacks) with permanent or serious effects on health.
VIII	1 to 10 fatalities occur locally (within the same building, campsite, vehicle or convoy of vehicles, same intersection, plaza etc.).
IX	10 to 50 fatalities occur locally (within the same building, campsite, vehicle or convoy of vehicles, same intersection, plaza etc.).
X	>50 fatalities occur locally (within the same building, campsite, vehicle or convoy of vehicles, same intersection, plaza etc.).

Reference

Diakakis, M., Deligiannakis, G., Antoniadis, Z., Melaki, M., Katsetsiadou, N.K., Andreadakis, E., N.I. Spyrou, N.I., Gogou, M., 2020. Proposal of a flash flood impact severity scale for the classification and mapping of flash flood impacts. Journal of Hydrology 2020, 590, 125452, ISSN 0022-1694. https://doi.org/10.1016/j.jhydrol.2020.125452 .