

# Weather-Scale Heat Health Systems Around the World



## United States<sup>ψ</sup>

- Local action prompted by NWS WFO alerts
- NWS WFOs Issue watch/advisory/warning; local agencies respond; CDC has Natl Env. Public Health Tracking Network
- Alerts issued at forecaster discretion; NWS issues guidance
- 72-hour lead time for heat watch; 6-10 excessive heat outlook
- Trigger is Heat Index, max/min temp., or synoptic system



## Canada<sup>¥</sup>

- City/Province level HARS (Heat Alert & Response Systems)
- Environment Canada issues Humidex fcast., high-low temps; Provincial Med. Officer of Health (MOH) administers
- Alert ultimately determined by MOH (Toronto)
- MOH issues extreme alert if 3 day duration exceeds thresholds
- Trigger is flexible: air temp, Humidex, air pollution, mortality



## Japan<sup>Δ</sup>

- City-level systems & national forecasts
- Local departments of Crisis Management, Health Promotion, or Sports Associations coordinate the systems
- Alert thresholds vary by city
- Advanced warning varies, one example is 21 hours
- WBGT is monitored at schools, as well as air temperature



## Germany<sup>\*</sup>

- National system with county-level warnings
- Developed and operated by federal environment agency and weather service in conjunction with public health office
- Warnings are produced at the county level
- 6 day forecast of heat pre-info from federal level
- Trigger is heat load based on perceived temperature



## Australia<sup>Ω</sup>

- State-level systems (Natl. req. for Heatwave Sub Plans)
- Dept. of Health owns system in Victoria; Emergency Operations owns system in New South Wales
- Alert threshold varies by forecast district (Victoria)
- 3-4 day advanced warning; 7 day forecast
- Trigger is average temperature  $\frac{1}{2}(\text{max} + \text{min})$



## India<sup>‡</sup>

- City-level system; Ahmedabad Heat Action Plan in 2013
- Ahmedabad Municipal Corporation (AMC) Nodal Officer issues alerts, Indian Met Centre declares heat wave
- 40C max daily temp threshold in plains, 30C in hilly regions
- 7 day forecast
- Hybrid dynamical-statistical probabilistic temperature forecast



## United Kingdom<sup>\*</sup>

- National system with regional thresholds
- Dept. of health owns and operates system while Met Office forecasts
- Alert threshold >30C day temp & 15C overnight
- 2-3 days lead time for lowest alert levels
- Trigger is min and max temperature



## France<sup>\*</sup>

- National system (SACS) with regional plans
- Health department issues plan and manages system while Meteo-France monitors and issues warnings
- Alert threshold regionally dependent
- 5 day forecast and 1 day alert lead time
- Trigger is min and max temperature; heat stress index