

Bioclimatologia humana – 27.03.2023

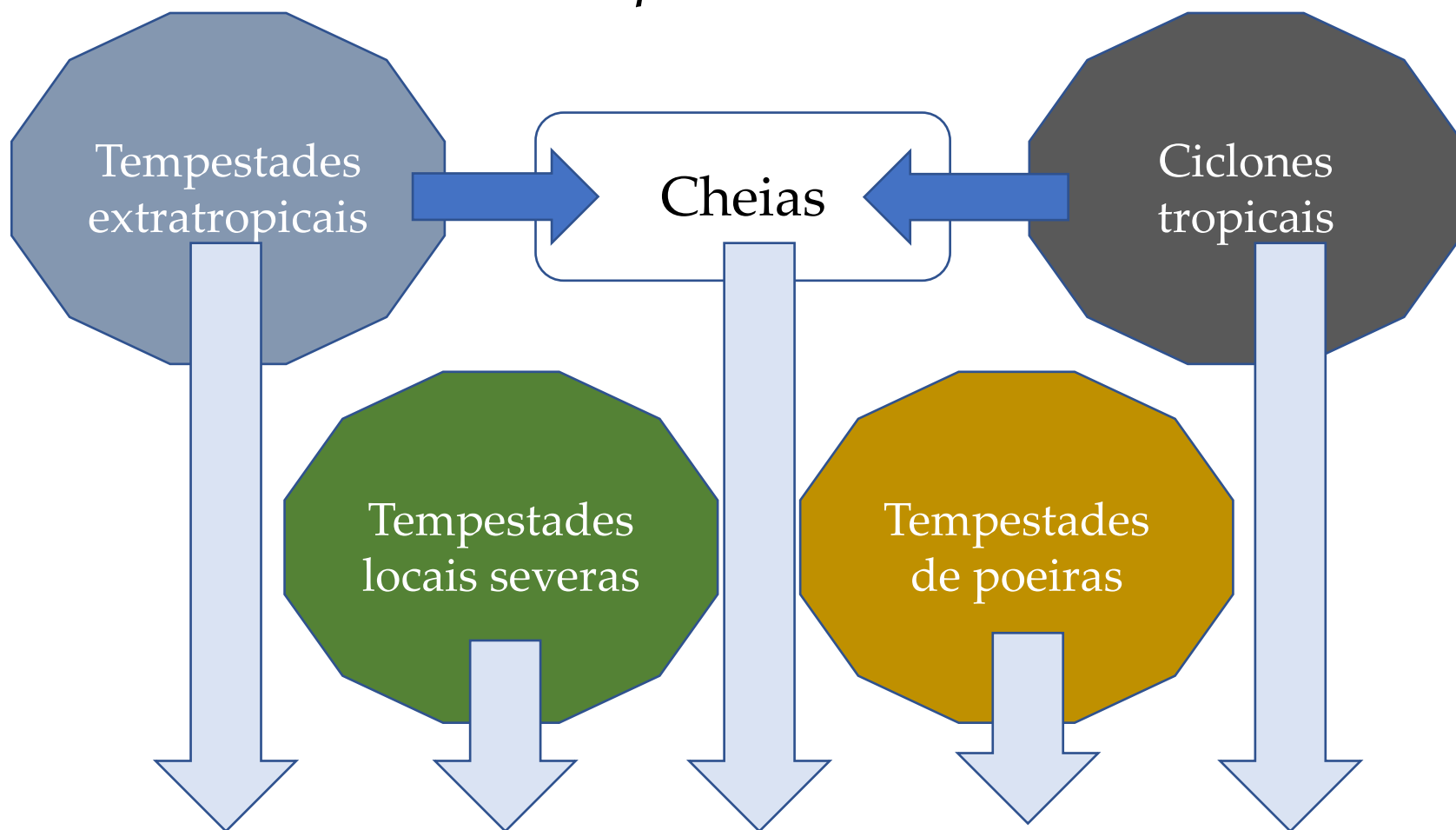
Eventos meteorológicos extremos e as suas consequências socioeconómicas e na saúde humana (I)



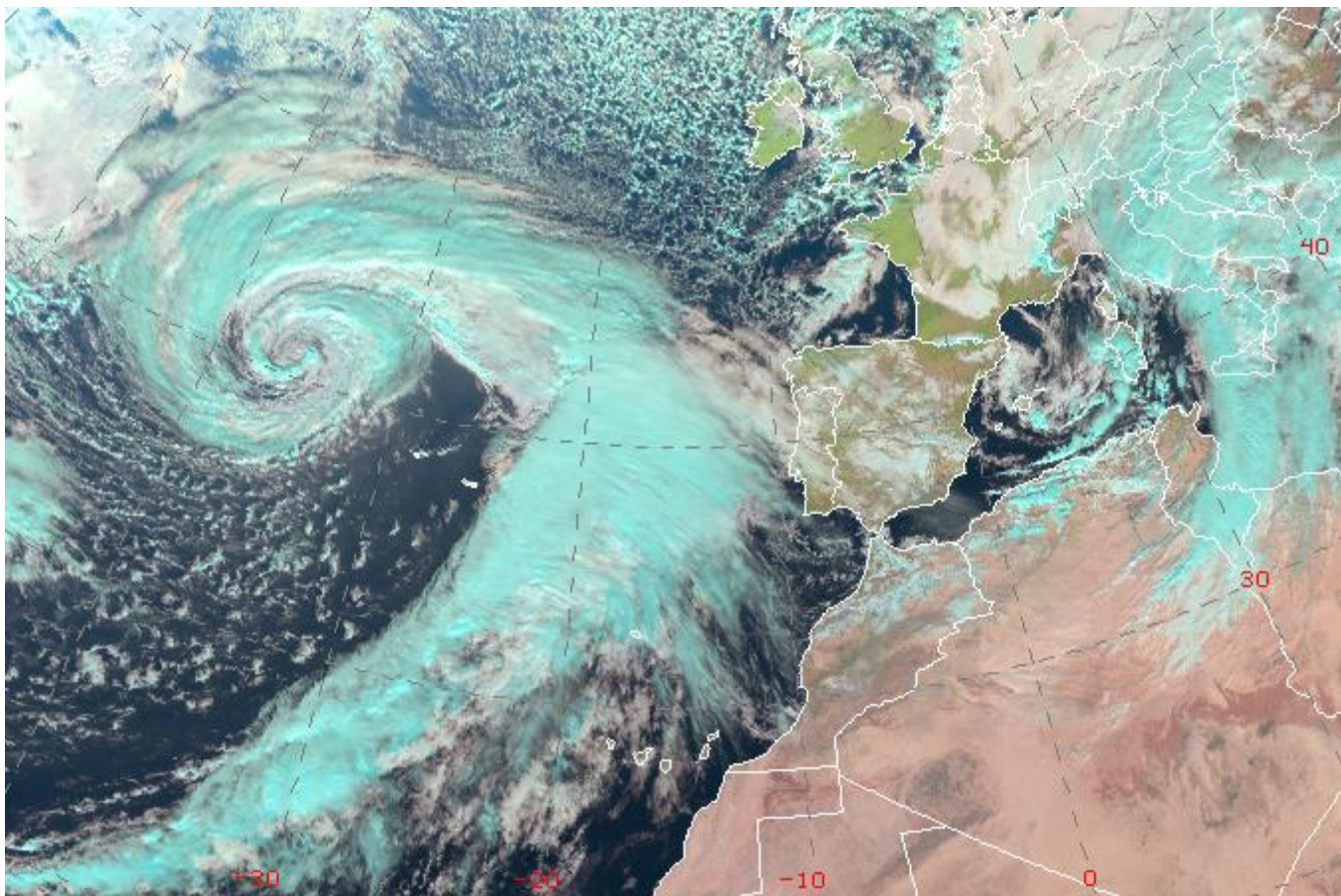
- 1. Introdução: eventos meteorológicos extremos: –*as tempestades*
- 2. As alterações climáticas e a exposição às tempestades e cheias
- 3. Principais problemas na saúde associados às cheias e tempestades

1. Introdução: eventos meteorológicos extremos – *as tempestades*

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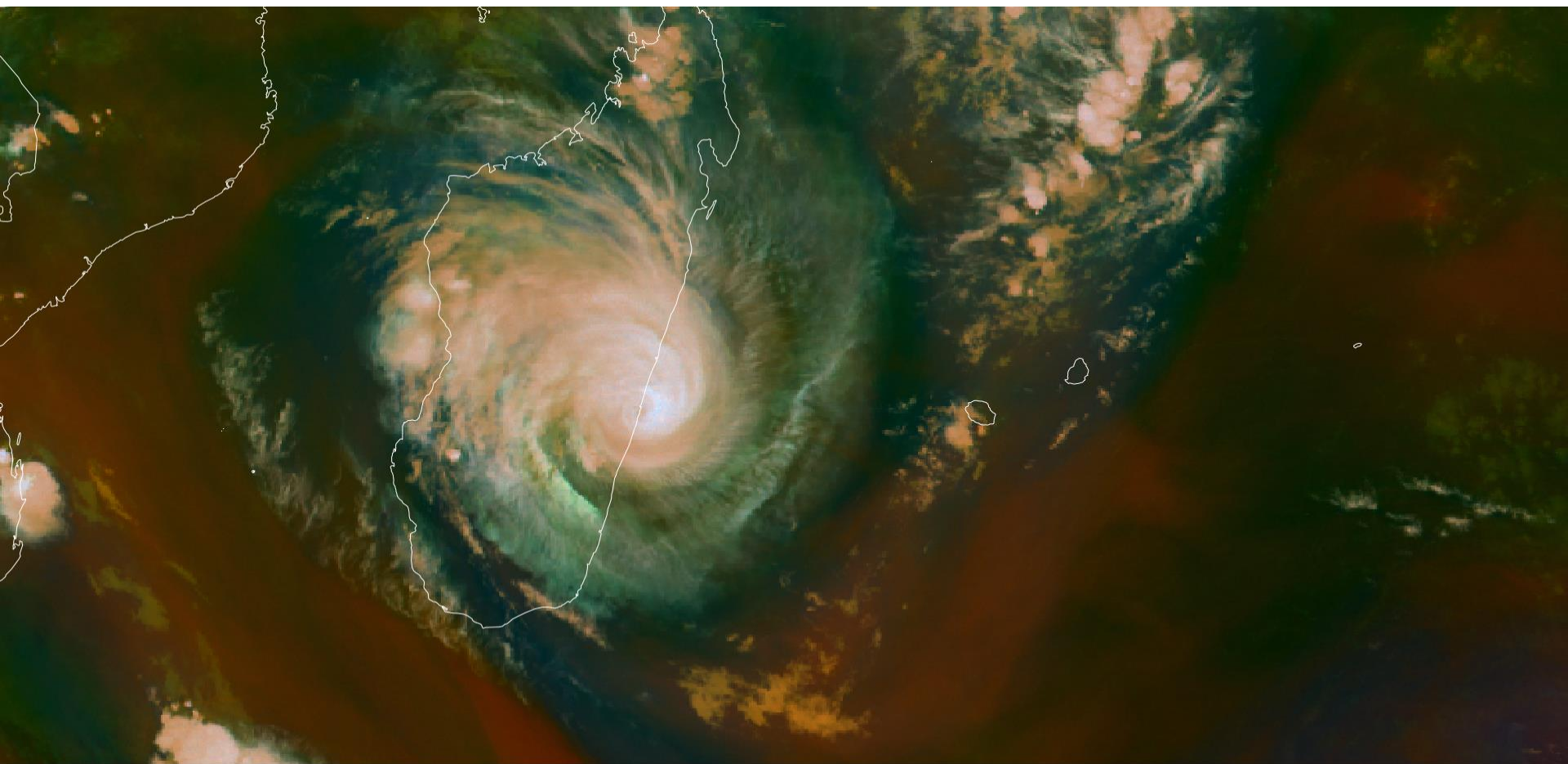


Efeitos diretos e indiretos na morbilidade e na mortalidade



https://www.aemet.es/es/conocermas/borrascas/2022-2023/estudios_e_impactos/efrain





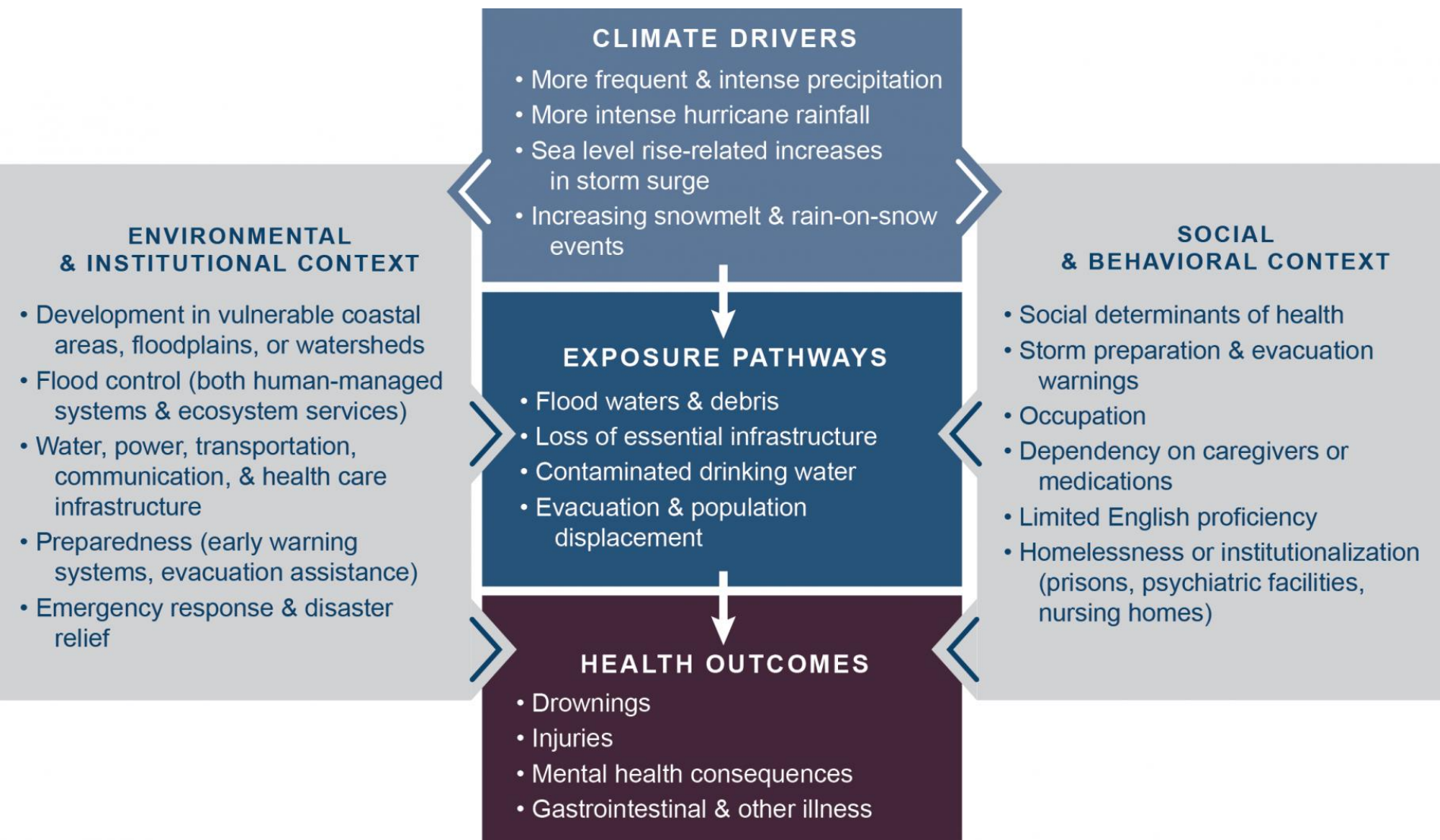
Fonte: <https://www.eumetsat.int/record-breaking-tropical-cyclone-freddy-crosses-indian-ocean>



Rolling Fork, 26.03.2022; Fonte: <https://www.bbc.com/news/in-pictures-65079578>



2. As alterações climáticas e a exposição às tempestades e cheias



extraído de Bell *et al.*, 2016

- Eventos hidrometeorológicos extremos, vulnerabilidade dos indivíduos e efeitos na saúde (Bell *et al.*, 2016):
 - *Exposição*
 - *Sensibilidade*
 - *Capacidade adaptativa*

3. Principais problemas na saúde associados às cheias e tempestades

- Efeitos diretos das cheias e tempestades:



Paquistão, agosto de 2022



Norte da Turquia, agosto de 2021



Debris-flow em Caraballeda (Venezuela, 14-16 dezembro 1999).

Impactos **diretos** das cheias na saúde

Impactos **diretos** das cheias na saúde

Direct Effects

Causes	Possible Health Concerns
Stream flow velocity, topographic land features, absence of warning, rapid speed of flood onset, deep floodwaters, landslides, risk behaviour, fast-flowing waters carrying boulders and fallen trees	Drowning, injuries
Contact with water	Respiratory diseases, shock, hypothermia, cardiac arrest
Contact with polluted waters	Wound infections, dermatitis, conjunctivitis, gastrointestinal illnesses, ear, nose, and throat infections, water-borne diseases
Increase of physical and emotional stress	Increased susceptibility to psychosocial disturbances and cardiovascular incidents

extraído de Berry *et al*, 2008

3. Principais problemas na saúde associados às cheias e tempestades

- Efeitos indiretos das cheias e tempestades:





Impactos **indiretos** das cheias na saúde

Impactos **indiretos** das cheias na saúde

Indirect Effects

Causes	Possible Health Concerns
Damage to water supply, sewage and sewage disposal damage, insufficient supply of drinking water, insufficient supply of water for washing	Water-borne infections (enterogenic <i>Escherichia coli</i> , <i>Shigella</i> , hepatitis A, leptospirosis, giardiasis, campylobacteriosis), dermatitis, conjunctivitis
Disruption of transportation systems	Food shortage, disruption of emergency response
Underground pipe disruption, dislodgement of storage tanks, overflow of toxic-waste sites, release of chemicals, rupture of gasoline storage tanks leading to fires	Acute or chronic chemical pollution
Standing water, heavy rainfall, expanded range of vector habitats	Vector-borne diseases
Rodent migration	Rodent-borne diseases
Disruption of social networks; loss of property, jobs, and family members and friends	Psychosocial disturbances
Clean-up activities following floods	Electrocutions, injuries, lacerations, skin punctures
Destruction of primary food products	Food shortage
Damage to health services, disruption of 'normal' health services activities	Decrease of "normal" health care services, insufficient access to medical care

extraído de Berry *et al*, 2008

Referências

- Alderman K., Lyle R.T.; Tong S. (2012) Floods and human health: A systematic review, *Environment International*, 47, 37-47.
- Bell J., Herring S., Jantarasami L., Adrianopoli C., Benedict K., Conlon K. Escobar V., Hess J., Luvall J., Pérez García-Pando C., Quattrochi D., Runkle J., Iii S. (2016). Ch. 4: Impacts of Extreme Events on Human Health. In book: The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. Global Change Research Program. 10.7930/J0BZ63ZV.
- Berry P., Mcbean G., Séguin J., Hallak A., Jean M., Klaver-Kibria J., Kovacs P., Riedel D., Zhao J. (2008). *Vulnerabilities to Natural Hazards and Extreme Weather*. In Human Health in a Changing Climate: A Canadian Assessment of Vulnerabilities and Adaptive Capacity. Ministry of Health, Canada.