

Detailed screening & tagging criteria

Inclusion	Exclusion	Borderline
Population/Problem (P)		
An <u>explicit</u> link is given to climate sensitive outcomes, including actual, projected, or perceived impacts of climate change, responses to reduce the impacts of climate change (adaptation), or the mitigation of greenhouse gas emissions. <i>Note:</i> evidence of detection and attribution or long scale trends is not required, but there must be an explicit relation to weather, weather events, seasonality, or other meteorological variables.	Links to climate change or climate change impacts are missing. <i>Example:</i> papers focussing purely on health; papers on material science without an explicit link to climate, potential or real adaptation options, or climate-relevant topics	The potential link to climate change is unclear, or health and climate sensitive outcomes are discussed in separate contexts.
An <u>explicit</u> link is given to actual, projected, or perceived (eligible) human health outcomes or pathways - including focus on sub-groups (e.g. people living with HIV, pregnant women, children, etc.)	Missing a clear link to eligible human health outcomes or pathways. <i>Example:</i> papers focusing purely on climate change or non-human health. This includes health of cattle & crops, unless a link is made to human health	Health pathways are implied, but there is no specific mention of human health outcomes. <i>Example:</i> Focus on climate impacts on air pollution; animal testing without a substantive link to human health
Interest (I) and Context (Co)		
Presents <u>empirical data</u> or proposes concrete options based on empirical data; can also include secondary analysis, combining multiple empirical studies, as well as empirically-driven modelling studies	Primary contributions are conceptual or theoretical. <i>Examples:</i> Theoretical frameworks that are untested; methodological improvements to models	It is unclear if the empirical component is substantial. <i>Examples:</i> Mentioning an impact study as the basis for action without having conducted this study; modelling studies that tangentially imply empirical data.
Time & scope (T/S)		
Published between 2013 and 2020	Published prior to 2013	n/a
Databased/indexed in English, with primary source available in any language	Not databased/indexed in English	n/a
Article, review only.	Editorials, books, conference proceedings, meetings, grey literature	n/a

Tags

Tags are not mutually exclusive.

Tag if...	Do not tag if...	Examples
Adaptation tag		
Explicit mention of responses or planning of responses within human systems to risks associated with the actual, perceived or projected impacts of climate change. This may include autonomous adaptation and maladaptation.	There is no discussion of responses to climate risks to human systems, or mention of responses is limited	<i>Example of documents that would be tagged:</i> Human responses to any of the climate impacts included in the query, including planning and modelling studies, vulnerability assessment, community-based adaptation, and adaptation policies. <i>Example of documents that would not be tagged:</i> Impact studies that refer to discussion of the implications of impacts for adaptation, but do not substantively explore adaptation options or actions.
Mitigation tag		
Discusses how the emission or release of greenhouse gasses, including short-lived greenhouse gasses, can be decreased. This includes cases where no actual gases are discussed, but energy usage or production is.	Does not discuss how to decrease the speed of climate change. Only discusses sustainability without specifying the effect on climate change.	<i>Examples of documents that would be tagged:</i> Alternative energy production, carbon sequestration. <i>Examples of documents that would not be tagged:</i> Forestry and land-use change projects where limiting climate change is not mentioned as a goal.
Impact tag		
Explicit mention of the actual, perceived or projected impacts of climate change on humans	No climate change impacts are discussed; the impacts are not relevant to humans; impacts are only briefly mentioned as an introduction to substantive focus on adaptation.	<i>Example of documents that would be tagged:</i> Modelling studies and qualitative analysis of any climate impacts.
Correct geotag		
The geoparser correctly identified a place name or other geographic feature.	The geoparser incorrectly identified a place name or other geographic feature.	<i>Example of documents that would be tagged as incorrect:</i> Mentions of international treaties, such as the Paris Agreement.

ROSES Systematic Mapping checklist

Section / sub-section	Topic	Checklist/ Meta-data	Author response
Title	Title	Meta-data	Mapping global research on climate and health: a machine learning systematic review protocol
Type of review	Type of review	Meta-data	systematic map
Authors contacts	Authors contacts	Checklist	Yes
Abstract	Structured summary	Checklist	Yes
Background	Background	Checklist	Yes
Stakeholder engagement	Stakeholder engagement	Checklist	Yes
Objective of the review	Objective	Checklist	Yes
	Definitions of the question components	Meta-data	See below
Methods			
Searches	Search strategy	Checklist	Yes
	Search string	Meta-data	See below
	Languages – bibliographic databases	Meta-data	English
	Languages – grey literature	Meta-data	n/a
	Bibliographic databases	Meta-data	3
	Web – based search engines	Meta-data	3
	Organisational websites	Meta-data	0
	Estimating the comprehensiveness of the search	Checklist	Yes
	Search update	Checklist	n/a
Article screening and study inclusion criteria	Screening strategy	Checklist	Yes
	Consistency checking	Checklist	Yes
	Inclusion criteria	Checklist	Yes
	Reasons for exclusion	Checklist	No
		Comment	We did not assess full texts. Machine learning was used to support screening.
Critical appraisal	Critical appraisal strategy	Checklist	Yes
	Critical appraisal used in synthesis	Checklist	Yes
	Consistency checking	Checklist	Yes
Data extraction	Meta-data extraction and coding strategy	Checklist	Yes
Data synthesis and presentation	Narrative synthesis strategy	Checklist	Yes
	Knowledge gap and cluster identification strategy	Checklist	Yes
	Demonstrating procedural independence	Checklist	Yes
Declarations	Competing interests	Checklist	Yes

Definition of question components

PICoST. Population: global; Interest: empirical evidence on the relationship between climate change, climate variability, weather and human health; Context: any component of the nexus between climate change, climate variability, weather and human health, including impacts on health, and responses (e.g. adaptation, mitigation) to reduce health impacts from climate change, but without prejudice to any climate-health pathways; Time and scope: scientific articles and reviews published between 2013 and 2020; title, abstract and keywords only (no full text)

Search string:

Using Scopus syntax: [(climat* OR "global warming" OR "greenhouse effect*") OR (("carbon dioxide" OR co2 OR methane OR ch4 OR "nitrous oxide" OR n2o OR "nitric oxide" OR "nitrogen dioxide" OR nox OR *chlorofluorocarbon* OR *cfc* OR refrigerant OR hydrofluorocarbon* OR hfc* OR *chlorocarbon* OR "carbon tetrachloride" OR ccl4 OR halogen* OR ozone OR o3 OR ammonia OR nh3 OR "carbon monoxide" OR co OR "volatile organic compounds" OR nmvoc OR "hydroxyl radical" OR "oh" OR "pm2.5" OR aerosol OR "black carbon" OR "organic carbon" OR "sulphur dioxide" OR "oxidized sulphur" OR "so2" OR "sox" OR "sulphuric acid" OR so4*) W/2 (emit* OR emission OR releas* OR mitigat*) AND NOT(star OR "solar system")) OR (temperature* OR precipitat* OR rainfall OR "heat ind*" OR "extreme-heat event*" OR "heat-wave" OR "extreme-cold*" OR "cold ind*" OR humidity OR drought* OR hydroclim* OR monsoon OR "el niño" OR enso OR SOI OR "sea surface temperature*" OR sst) OR (snowmelt* OR flood* OR storm* OR cyclone* OR hurricane* OR typhoon* OR "sea-level" OR wildfire* OR "wild-fire*" OR "forest-fire*" OR ((extreme W/1 event*) AND NOT paleo*) OR "coast* erosion" OR "coastal change*" OR (disaster* W/1 (risk OR manag* OR natural)))] AND [(health* OR well?being OR ill OR illness OR disease* OR syndrome* OR infect* OR medical*) OR (mortality OR daly OR morbidity OR injur* OR death* OR hospital* OR {a&e} OR emergency OR emergencies OR doctor OR gp) OR (obes* OR over?weight OR under?weight OR hunger OR stunting OR wasting OR undernourish* OR undernutrition OR anthropometr* OR malnutrition OR malnour* OR anemia OR anaemia OR "micronutrient*" OR "micro?nutrient*" OR diabet*) OR (hypertension OR "blood pressure" OR stroke OR *vascular OR (cvd AND NOT(vapour OR vapor)) OR "heart disease" OR isch?emic OR cardio?vascular OR "heart attack*" OR coronary OR chd) OR (ckd OR renal OR cancer OR kidney OR lithogenes*) OR ((heat W/2 (stress OR fatigue OR burn* OR stroke OR exhaustion OR cramp*)) OR skin OR fever* OR renal* OR rash* OR eczema* OR "thermal stress" OR hypertherm* OR hypotherm*) OR (pre?term OR stillbirth OR birth?weight OR lbw OR maternal OR pregnan* OR gestation* OR *eclampsia OR sepsis OR oligohydramnios OR placenta* OR haemorrhage OR hemorrhage) OR (malaria OR dengue* OR mosquito* OR chikungunya OR leishmaniasis OR encephalit* OR vector-borne OR pathogen OR zoonos* OR zika OR "west nile" OR onchocerciasis OR filiariasis OR lyme OR tick?borne) OR (waterborne OR "water borne" OR diarrhoea* OR diarrhe*I OR gastro* OR enteric OR *bacteria* OR viral OR *virus* OR parasit* OR vibrio* OR cholera OR protozoa* OR salmonella OR giardia OR shigella OR campylobacter OR food?borne OR aflatoxin OR poison* OR ciguatera OR((snake* OR adder*) W/2 bite*)) OR (respiratory OR allerg* OR lung* OR asthma* OR bronchi* OR pulmonary* OR copd OR rhinitis OR wheez*) OR (mental OR depress* OR *stress* OR anxi* OR ptsd OR psycho* OR *trauma* OR suicide* OR solastalgi*)]