

COACCH Data Repository Document- tation

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This site provides access to the results generated in the [COACCH](#) project (CO-designing the Assessment of Climate CHange costs), funded by the European Union's Horizon 2020 research and innovation programme. Throughout this project running from 2017 to 2021, an ensemble of models produced an improved downscaled assessment of the risks and costs of climate change in Europe.

Additional datasets will be released upon their finalization within the project.

Next to this data repository, a [Climate Change Impact Scenario Explorer](#) allows users to visualize the most important COACCH results at the NUTS2 level for different socio-economic and climate scenarios. Users interested in the data behind the scenario explorer can further explore the results generated in the COACCH project through this repository.

Climate Impact Assessment

1.1 ImpactChains_GLOBIOM

DOI [10.5281/zenodo.5513871](https://doi.org/10.5281/zenodo.5513871)

1.1.1 Description:

Socio-economic and environmental impacts of gradual climate change on agriculture, forestry and fisheries calculated using the GLOBIOM model

1.1.2 COACCH-Specific Metadata:

- **Sector:** Agriculture, forestry and fisheries
- **Partner:** IIASA
- **SSP:** SSP1, SSP2, SSP3, SSP4, SSP5
- **RCP:** RCP2.6, RCP4.5, RCP6.0, RCP8.5
- **Spatial resolution Europe:** NUTS2 2013
- **Keywords:** gradual climate change, agriculture, forestry, fisheries, partial-equilibrium, socio-economic

1.1.3 Authors:

Boere, Esther

1.2 River flooding impacts using CLIMRISK-RIVER

DOI [10.5281/zenodo.5529888](https://doi.org/10.5281/zenodo.5529888)

1.2.1 Description:

Direct impacts of river flooding using the CLIMRISK-RIVER model. This includes direct impacts to built environment and infrastructure.

The damage is expressed as a change in expected annual damage (EAD) w.r.t. 2010.

Files include two adaptation assumptions: no additional adaptation and optimal adaptation (using CBA estimates).

Units: millions EUR (2015) PPP.

1.2.2 COACCH-Specific Metadata:

- **Sector:** Direct impacts to built environment and infrastructure
- **Partner:** IVM - VU
- **SSP:** SSP1, SSP2, SSP3, SSP4, SSP5
- **RCP:** RCP2.6, RCP4.5, RCP6.0, RCP8.5
- **Spatial resolution Europe:** NUTS2 2013
- **Keywords:** river flooding, river flood adaptation, glofris, flopros

1.2.3 Authors:

Ignjacevic, Predrag

1.3 Riverine Flood Insurance assessment indicators under climate and socio-economic change

DOI [10.5281/zenodo.5534190](https://doi.org/10.5281/zenodo.5534190)

1.3.1 Description:

Expected annual river flood damages, flood insurance premiums, and insurance penetration rates, for EU-regions (NUTS2) and under future climatic and socio-economic conditions (RCP-SSP combinations).

1.3.2 COACCH-Specific Metadata:

- **Sector:** Infrastructure built environment and transport
- **Partner:** STICHTING VU
- **SSP:** SSP1, SSP2, SSP3, SSP5
- **RCP:** RCP2.6, RCP4.5, RCP6.0, RCP8.5
- **Spatial resolution Europe:** NUTS2
- **Keywords:** Flood damage, insurance premiums, unaffordability, uptake, adaptation

1.3.3 Authors:

Tesselaar, Max

1.4 Supply Chain Shocks due to extreme weather events

DOI [10.5281/zenodo.5541327](https://doi.org/10.5281/zenodo.5541327)

1.4.1 Description:

Projected supply chain shocks due to extreme weather events measured in annual percentage change in a country-sector's export activity compared to the baseline period

1.4.2 COACCH-Specific Metadata:

- **Sector:** Industry energy services and trade
- **Partner:** UNI GRAZ
- **SSP:** SSP2
- **RCP:** RCP2.6, RCP4.5
- **Spatial resolution Europe:** Country
- **Keywords:** supply chain shocks, extreme weather events, climate change

1.4.3 Authors:

Borsky, Stefan

1.5 Climate change impacts on energy demand

DOI [10.5281/zenodo.5541894](https://doi.org/10.5281/zenodo.5541894)

1.5.1 Description:

Climate change impacts on energy demand by energy carrier (electricity, natural gas, and petroleum) and sector (agriculture, industry, residential, and commercial).

1.5.2 COACCH-Specific Metadata:

- **Sector:** Energy demand
- **Partner:** CMCC
- **SSP:** SSP2
- **RCP:** RCP2.6, RCP4.5, RCP6.0, RCP8.5
- **Spatial resolution Europe:** NUTS2 2013
- **Keywords:** climate change, energy demand, energy carrier, sectoral, socio-economic, econometrics

1.5.3 Authors:

Shouro Dasgupta

1.6 Valuation of heat related mortality risk and tick-borne diseases

DOI [10.5281/zenodo.5541337](https://doi.org/10.5281/zenodo.5541337)

1.6.1 Description:

Monetary impacts of premature mortality due to heat waves

Preferences for public programmes against spread of ticks due to climate change and a new vaccine against Lyme disease, prevalence of tick-borne diseases and exposure to ticks

1.6.2 COACCH-Specific Metadata:

- **Sector:** Health
- **Partner:** CHARLES UNIVERSITY
- **SSP:** NA
- **RCP:** RCP2.6; RCP4.5; RCP8.5
- **Spatial resolution Europe:** European regions: Northern Europe (Denmark; Iceland; Finland; Norway; Sweden); Eastern Europe (Estonia; Hungary; Latvia; Lithuania; Romania; Slovakia; Poland); Central Europe (Austria; Czech Republic; Germany; Switzerland); Western Europe (Belgium; France; Ireland; Netherlands; Luxembourg; United Kingdom) and Southern Europe (Bulgaria; Croatia; Cyprus; Greece; Italy; Malta; Portugal; Slovenia; Spain); country
- **Keywords:** Value per Statistical Life; monetary impacts; heat waves; climate change; premature mortality; socio-economic analysis

1.6.3 Authors:

Iva Zvěřinová; Milan Ščasný; Vojtěch Máca; Anna Alberini

1.7 Macroeconomic assessment of Climate Change Impacts

DOI [10.5281/zenodo.5546248](https://doi.org/10.5281/zenodo.5546248)

1.7.1 Description:

Macroeconomic assessment of impacts on: Agriculture, Fishery, Forestry, Sea level rise, Riverine floods, Transport, Energy supply, Energy demand, Labour productivity, plus compounded assessment of all impacts

1.7.2 COACCH-Specific Metadata:

- **Sector:** Macro-economic
- **Partner:** CMCC
- **SSP:** SSP1, SSP2, SSP3, SSP5
- **RCP:** RCP2.6, RCP4.5, RCP6.0, RCP8.5
- **Spatial resolution Europe:** NUTS2 2013
- **Keywords:** Macroeconomic assessment, Climate Change impacts, General-equilibrium.

1.7.3 Authors:

Parrado, Ramiro; Bosello, Francesco; Standardi, Gabriele

1.8 COACCH_D2_3_coast.csv

DOI [10.5281/zenodo.5703656](https://doi.org/10.5281/zenodo.5703656)

1.8.1 Description:

expected annual damages and protection cost under sea-level rise and socio-economic change

1.8.2 COACCH-Specific Metadata:

- **Sector:** Infrastructure built environment and transport
- **Partner:** GCF
- **SSP:** SSP1, SSP2, SSP3, SSP5
- **RCP:** RCP2.6, RCP4.5, RCP6.0, RCP8.5
- **Spatial resolution Europe:** NUTS2
- **Keywords:** Sea flood damages, coastal adaptation

1.8.3 Authors:

Lincke, Daniel

1.9 COACCH_D2.6_CT3

DOI [10.5281/zenodo.5744283](https://doi.org/10.5281/zenodo.5744283)

1.9.1 Description:

European Heat Wave risk in the near, mid-term and distant future, under the RCP4.5 - SSP2 and RCP8.5 - SSP5 scenarios

1.9.2 COACCH-Specific Metadata:

- **Sector:** Future risks associated with heat waves
- **Partner:** BC3
- **SSP:** SSP2, SSP5
- **RCP:** RCP4.5, RCP8.5
- **Spatial resolution Europe:** ~12.5 km
- **Keywords:** Heat Waves, climate, socio-economic, risk, population projections, vulnerability, exposure, hazard

1.9.3 Authors:

Marek Smid

Tipping Points

2.1 SETP Food

DOI [10.5281/zenodo.5529732](https://doi.org/10.5281/zenodo.5529732)

2.1.1 Description:

Climate-induced shock on crop productivity in the short (around 2030) and medium (around 2050) term. Productivity changes are selected as the overall largest annual drop in yields at a European level in the 30-year moving window around 2030 and 2050.

2.1.2 COACCH-Specific Metadata:

- **Sector:** Agriculture
- **Partner:** IIASA
- **SSP:** NA
- **RCP:** RCP2.6, RCP4.5, RCP8.5
- **Spatial resolution Europe:** NUTS2 2013
- **Keywords:** agriculture, crop modelling, extreme events

2.1.3 Authors:

Boere

2.2 Climate induced economic shocks using CLIMRISK

DOI [10.5281/zenodo.5530146](https://doi.org/10.5281/zenodo.5530146)

2.2.1 Description:

Various risk measures of climate induced economic shocks using CLIMRISK. Metrics include year of exceeding 1 billion in climate damages, year of exceeding 5% annual GDP lost and a multivariate risk index (1 billion, 5% GDP and 3 degrees temperature exceedance).

2.2.2 COACCH-Specific Metadata:

- **Sector:** Direct impacts

- **Partner:** IVM - VU
- **SSP:** SSP1, SSP2, SSP3, SSP4, SSP5
- **RCP:** RCP2.6, RCP4.5, RCP6.0, RCP8.5
- **Spatial resolution Europe:** NUTS2 2013
- **Keywords:** CLIMRISK, risk-measures, absolute risk, relative risk, multivariate risk indices

2.2.3 Authors:

Ignjacevic, Predrag

2.3 WP3-CT2 Alpine Glaciers Disappearance Tipping Point

DOI [10.5281/zenodo.5549953](https://doi.org/10.5281/zenodo.5549953)

2.3.1 Description:

Glaciers Length changes starting from small, medium, and large glaciers.

2.3.2 COACCH-Specific Metadata:

- **Sector:** Industry energy services and trade
- **Partner:** CMCC
- **SSP:** NA
- **RCP:** RCP2.6
- **Spatial resolution Europe:** ~11km
- **Keywords:** Glacier, climate change, tipping point

2.3.3 Authors:

Peano, Daniele; Scoccimarro, Enrico

2.4 COACCH_D3_3_high_end_SLR

DOI [10.5281/zenodo.5703659](https://doi.org/10.5281/zenodo.5703659)

2.4.1 Description:

expected annual damages and protection cost under sea-level rise and socio-economic change

2.4.2 COACCH-Specific Metadata:

- **Sector:** Infrastructure built environment and transport
- **Partner:** GCF
- **SSP:** SSP5
- **RCP:** RCP8.5 high end scenario
- **Spatial resolution Europe:** NUTS2

- **Keywords:** Sea flood damages coastal adaptation

2.4.3 Authors:

Lincke, Daniel

2.5 COACCH_D3_3_coastal_migration

DOI [10.5281/zenodo.5703667](https://doi.org/10.5281/zenodo.5703667)

2.5.1 Description:

expcted annual migration and expected annual total SLR cost under sea-level rise and socio-economic change

2.5.2 COACCH-Specific Metadata:

- **Sector:** Infrastructure built environment and transport
- **Partner:** GCF
- **SSP:** SSP1, SSP2, SSP3, SSP5
- **RCP:** RCP2.6, RCP4.5, RCP6.0, RCP8.5
- **Spatial resolution Europe:** NUTS2
- **Keywords:** Sea flood damages, coastal migration, coastal adaptation

2.5.3 Authors:

Lincke, Daniel

Policy Impact

3.1 Additional dataset to “Comparing urban coastal flood risk in 136 cities under two alternative sea-level projections: RCP 8.5 and an expert opinion-based high-end scenario”

DOI [10.5281/zenodo.4733499](https://doi.org/10.5281/zenodo.4733499)

3.1.1 Description:

This dataset provides additional information to that included in:

Abadie, L.M., Jackson, L.P., Sainz de Murieta, E., Jevrejeva, S., Galarraga, I., 2020. Comparing urban coastal flood risk in 136 cities under two alternative sea-level projections: RCP 8.5 and an expert opinion-based high-end scenario. *Ocean & Coastal Management* 193, 105249. <https://doi.org/10.1016/j.o-cecoaman.2020.105249>

The file contains sea-level rise projections, expected damages and risk data for RCP4.5 and RCP2.6 additionally to the RCP8.5 and the High-end scenario provided in the aforementioned article. Also, we present the data for every decade from 2020 to 2100.

3.1.2 COACCH-Specific Metadata:

- **Sector:** Infrastructure built environment and transport
- **Partner:** BC3
- **SSP:** -
- **RCP:** RCP2.6, RCP4.5, RCP8.5
- **Spatial resolution Europe:** City (urban agglomeration)
- **Keywords:** Regional sea-level rise, Probabilistic projections, Coastal cities, Damage risk, Ice-sheet melting risk, Unmitigated scenarios

3.1.3 Authors:

Abadie, Luis M.; Jackson, Luke P.; Sainz de Murieta, Elisa; Jevrejeva, Svetlana; Galarraga, Ibon

3.2 Time of emergence of climate change impacts

DOI [10.5281/zenodo.5530237](https://doi.org/10.5281/zenodo.5530237)

3.2.1 Description:

Expected year in which climate impacts would exceed an extreme past economic shock value (95th percentile).

Model used: CLIMRISK

Scale: 0.5 degrees * 0.5 degrees

Shock database consists of changes in annual GDP between 1950 - 2016.

Citation: Ignjacevic, Predrag, Francisco Estrada Porrua, and Willem Jan Wouter Botzen. "Time of emergence of economic impacts of climate change." *Environmental Research Letters* (2021).

3.2.2 COACCH-Specific Metadata:

- **Sector:** Direct impacts to all sectors
- **Partner:** IVM - VU
- **SSP:** SSP1, SSP2, SSP3, SSP4, SSP5
- **RCP:** RCP2.6, RCP4.5, RCP6.0, RCP8.5
- **Spatial resolution Europe:** NUTS2 2013
- **Keywords:** CLIMRISK, time of emergence of climate change, time to adapt

3.2.3 Authors:

Ignjacevic, Predrag

3.3 Reduced-form Climate Change Damage Functions

DOI [10.5281/zenodo.5546264](https://doi.org/10.5281/zenodo.5546264)

3.3.1 Description:

Reduced-form Climate Change Damage Functions of impacts on: Agriculture, Fishery, Forestry, Sea level rise, Riverine floods, Transport, Energy supply, Energy demand, Labour productivity.

3.3.2 COACCH-Specific Metadata:

- **Sector:** Macro-economic
- **Partner:** CMCC/PBL
- **SSP:** NA
- **RCP:** NA
- **Spatial resolution Europe:** NUTS2 2013
- **Keywords:** Macroeconomic assessment, Policy effectiveness, Climate Change impacts

3.3.3 Authors:

Parrado, Ramiro; Bosello, Francesco; Van der Wijst, Kaj-Ivar; Standardi, Gabriele

Disclaimer

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