

# Middle East Technical University

**Disaster Management  
Implementation and Research Center  
(DMC)**

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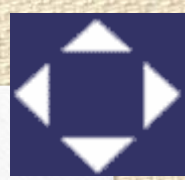
**DMC Website: [www.dmc.metu.edu.tr](http://www.dmc.metu.edu.tr)**

**E-mail: [dmc@metu.edu.tr](mailto:dmc@metu.edu.tr)**

**(est. 1997)**

**Tel: +90 (312) 210 5410/5427**

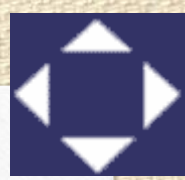
**Fax: +90 (312) 210 1328**



# DMC

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- Established in November 1997
- First Disaster Management Centre within academia
- Under the UNDP cost-sharing project in order for «the improvement of Turkey's Disaster Management System»



# STEERING COMMITTEE

**Assist. Prof. Dr. Bekir Özer AY**

Department of Architecture

**Prof. Dr. Özlem ÖZDEMİR,**

Department of Business Administration

**Assist. Prof. Dr. Meltem ŞENOL BALABAN (director),**

Department of City and Regional Planning

**Prof. Dr. M. Altuğ ERBERİK,**

Department of Civil Engineering

**Assist. Prof. Dr. Arda ÖZACAR ,**

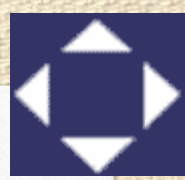
Department of Geological Engineering

**Prof. Dr. Sibel KALAYCIOĞLU,**

Department of Sociology

**Assoc. Prof. Dr. B. Burçak BAŞBUĞ ERKAN (on leave, previous director)**

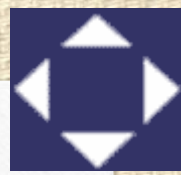
Department of Statistics



# Objectives:

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- Provides consultancy and project support to national and international institutions, with a multidisciplinary approach for mitigation of disasters caused by natural and man-made events.
- Offers seminars, training courses, in-service training to officials or to community groups within the framework of disaster risk management.
- Conducts research, implementation and improvement activities about disaster risk management.
- Since from the beginning, organizes scientific and professional meetings (e.g. Annual Round Table Meetings) regularly for disaster related issues, legislation and actual implementational problems and recently risk management approaches.

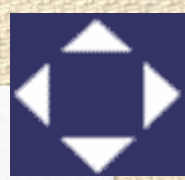


# METU-DMC

## ANNUAL ROUND TABLE MEETINGS (RTM)

- ✓ **21. RTM**                      **22 February 2019**
- .....
- ✓ 12. RTM                        15 January 2010
- ✓ 11. RTM                        16 January 2009
- ✓ 10. RTM                        11 January 2008
- ✓ 9. RTM                         12 January 2007
- ✓ 8. RTM                         20 January 2006
- ✓ 7. RTM                         7 January 2005
- ✓ 6. RTM                         16 January 2004
- ✓ 5. RTM                         28 March 2003
- ✓ 4. RTM                         21 December 2001
- ✓ 3. RTM                         19 January 2001
- ✓ 2. RTM                         16 December 1999
- ✓ **1. RTM**                        **4 December 1998**

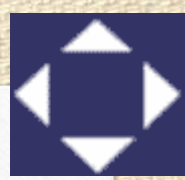




# METU-DMC ANNUAL ROUND TABLE MEETINGS (RTM)

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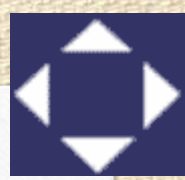
- All day long meetings with different thematic groups like pshyco-social studies, engineering solutions, urban planning issues, social aspects of disasters and so on.
- Spectrum of disciplines is wide from natural sciences to social sciences since disaster risk management field has multi-disciplinary approach
- Open to all stakeholders from governmental institutions, academia to NGOs, S&R Teams and initiatives
- Discussion forum and final outcomes of the annual meeting to communicate with decisionmakers!



# What topic at hand:

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- Civil-structural engineering-damage assessment (mainly earthquakes)
- Land use and urban planning in hazard-prone areas
- Flood risk management
- Geological aspects of disasters
- Financial management of disaster related losses and insurance
- Social and psychological counseling and facilitation of community involvement
- Trainings, education for resilient communities
- Institutional and legal aspects of disasters



## Some recent activities/projects

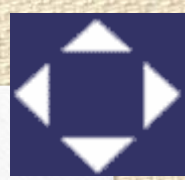
1. TCTP 2017, TCTP 2018 and currently TCTP 2019
2. Global Academic Network on Disasters (GAND) membership (2015) and GAND 2016 Meeting at METU
3. Consultancy for Istanbul Greater Municipality for Social Aspects of Disaster Risk in Istanbul (2015)
4. Turkish Parliament Investigation Committee advisory on Soma Mining Disaster, 13 May 2014
5. 'Turkish Disaster Data Bank' for the Turkish Disaster and Emergency Management Authority, October 2012-April 2014
6. METU campus: ready for disaster and emergencies: Case of METU library in 2014 and Dormitories in 2015
7. Disaster Management Terminology Dictionary by AFAD
8. Online Disaster Management Courses (since 2007)
9. EU project 'TACTIC' for resilient communities (2014-2015)



## Some topics of training:

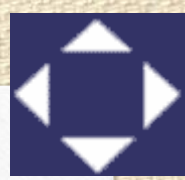
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1. Principles of Comprehensive DRM
2. Community based DRM
3. Hazard Hunt
4. Structural and Non-structural risk mitigation
5. Psycho-social training
6. Financial risk reduction on disaster losses
7. Catastrophe insurance / TCIP
8. Architectural overview of DRM
9. Damage assessment
10. Disaster statistics
11. Media communications
12. Flood risk analysis/planning
13. Sustainable development



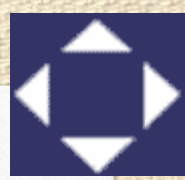
32 universities (still increasing) in Turkey have education programs related to DRM/DRR,

- 
- Istanbul Technical University (ITU)
  - Bosphorus University (BOUN)
  - Çanakkale Onsekiz Mart University (ÇOMU)
  - 9 Eylül University (DEU)
  - Ankara University (AU)
  - Düzce University
  - Anadolu University Open Education Faculty
  - ...



# Disasters World Wide and Turkey

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Indonesia, Earthquake and Tsunami

Japan, Flooding and Landslide

Death Toll: **419**

North Korea, Flooding and Landslide

### 2018 Yılında Gerçekleşen Afetlerden Etkilenen İnsan Sayısı ve 21.YY ortalamaları

#### Total Number of People Affected by Disaster Type (2018 vs. average 21<sup>st</sup> Century)

Event	Afet Olayı	2018	Average (2000-2017)
Drought	Kuraklık	9,368,345	58,734,128
Earthquake	Deprem	1,517,138	6,783,729
Extreme temperature	Aşırı sıcaklık	396,798	6,368,470
Flood	Sel/Su Baskını	35,385,178	86,696,923
Landslide	Heyelan	54,908	263,831
Mass movement (dry)	Kütle Hareketi (kuru)	0	286
Storm	Fırtına	12,884,845	34,083,106
Volcanic activity	Volkanik Hareket	1,908,770	169,308
Wildfire	Orman Yangını	256,635	19,243
<b>Total</b>	<b>Toplam</b>	<b>61,772,617</b>	<b>193,312,310</b>

Source: EM-DAT (International Disaster Database)



India, Monsoon floods

Death Toll: **1388**



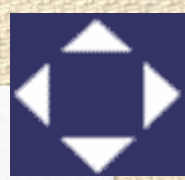
USA, Forest Fires

Death Toll: **298**



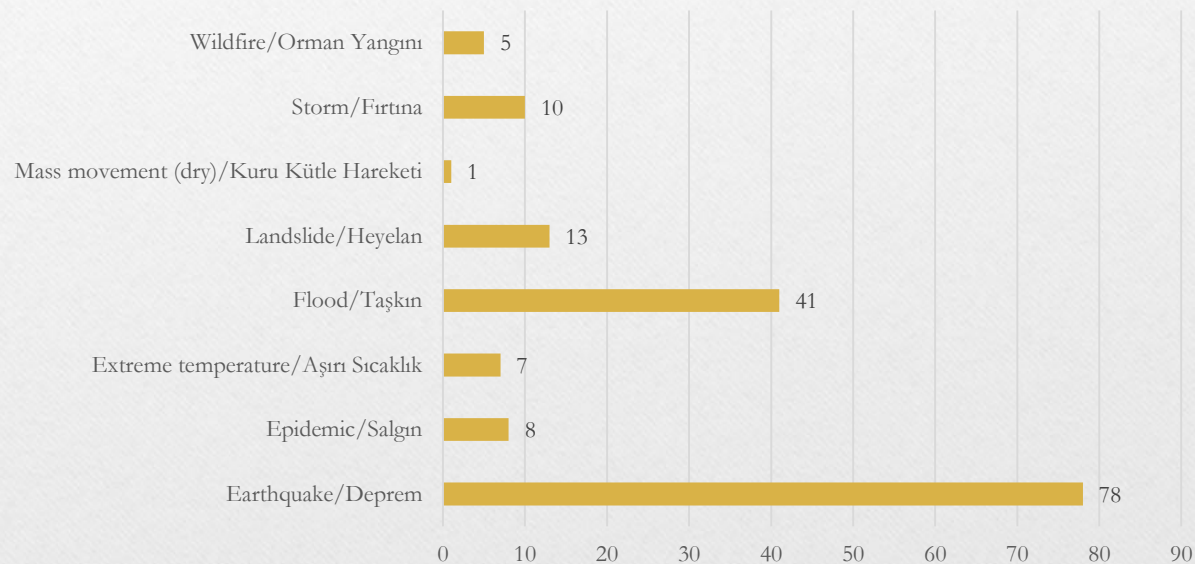
2018 ANTALYA



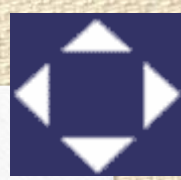


# Disaster Events in Turkey by type (1900-2018)

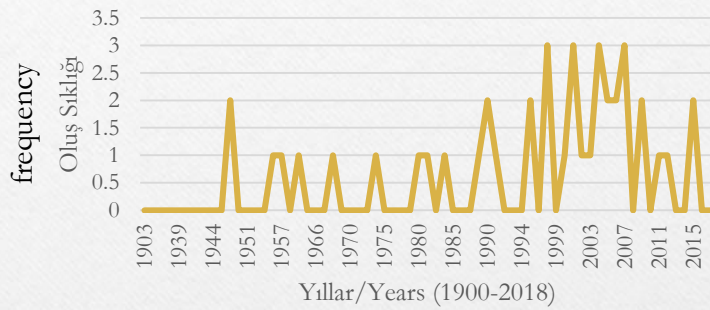
Türkiye'de Gerçekleşen Afet Olayları (1900-2018)



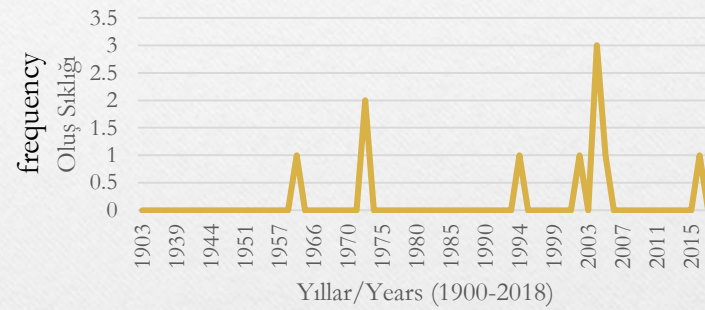
Source: EM-DAT: The Emergency Events Database - Universite catholique de Louvain (UCL) - CRED, D. Guha-Sapir - [www.emdat.be](http://www.emdat.be), Brussels, Belgium



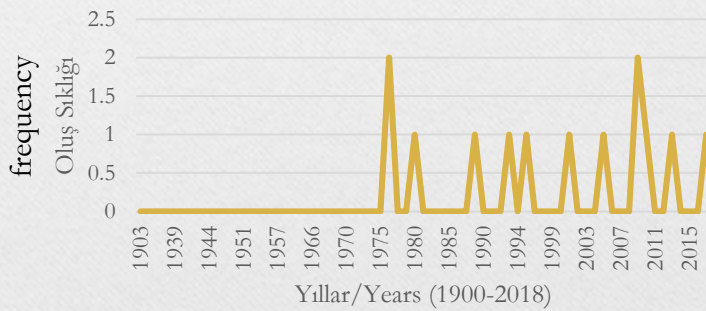
### Taşkın/Floods



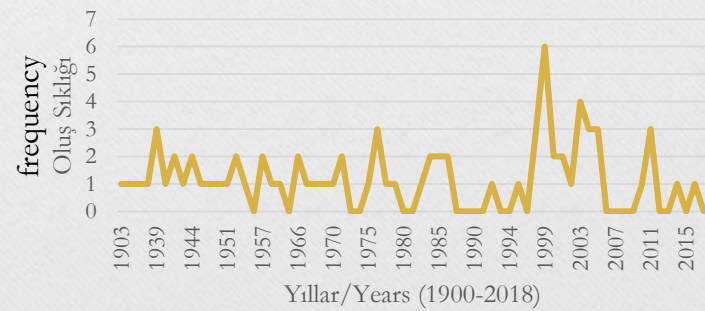
### Fırtına/Storm



### Heyelan/Landslide

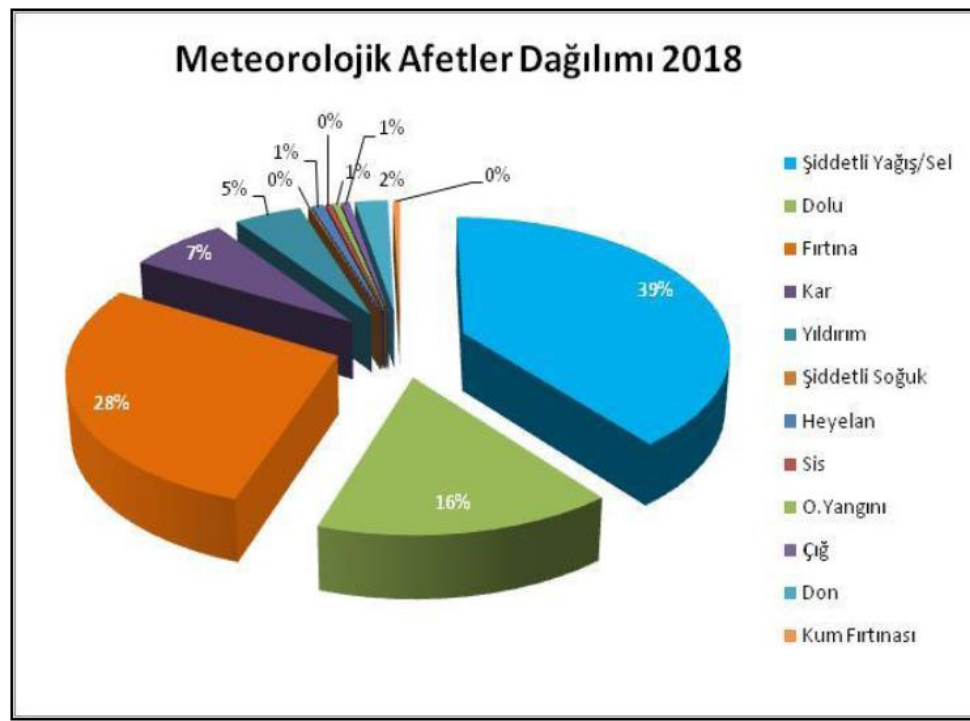


### Deprem/Earthquake



Source: EM-DAT: The Emergency Events Database – Reproduced by the author.

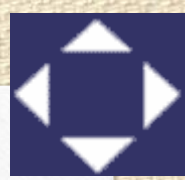
# Meteorological Disasters in Turkey (2018)



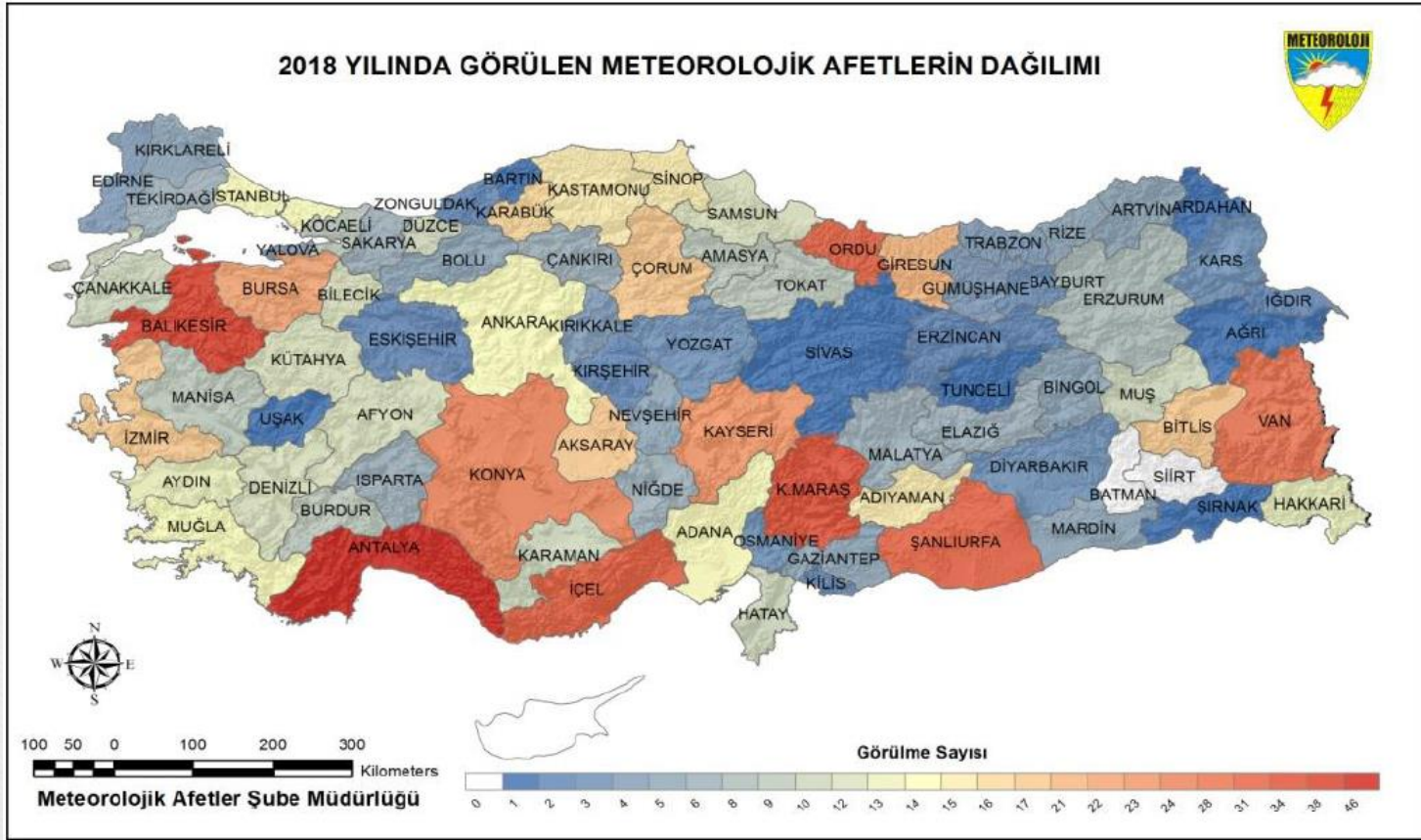
- Extreme Rainfall/Flooding
- Hail
- Storm
- Snow
- Thunder storm
- Extreme Cold
- Landslide
- Fog
- Forest Fire
- Avalanche
- Frost
- Sand Storm

Source: <https://mgm.gov.tr/FILES/iklim/yillikiklim/2018-iklim-raporu.pdf> (in Turkish)

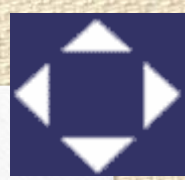




## Distribution of Meteorological Disasters in TR in 2018



Source: <https://mgm.gov.tr/FILES/iklim/yillikiklim/2018-iklim-raporu.pdf>

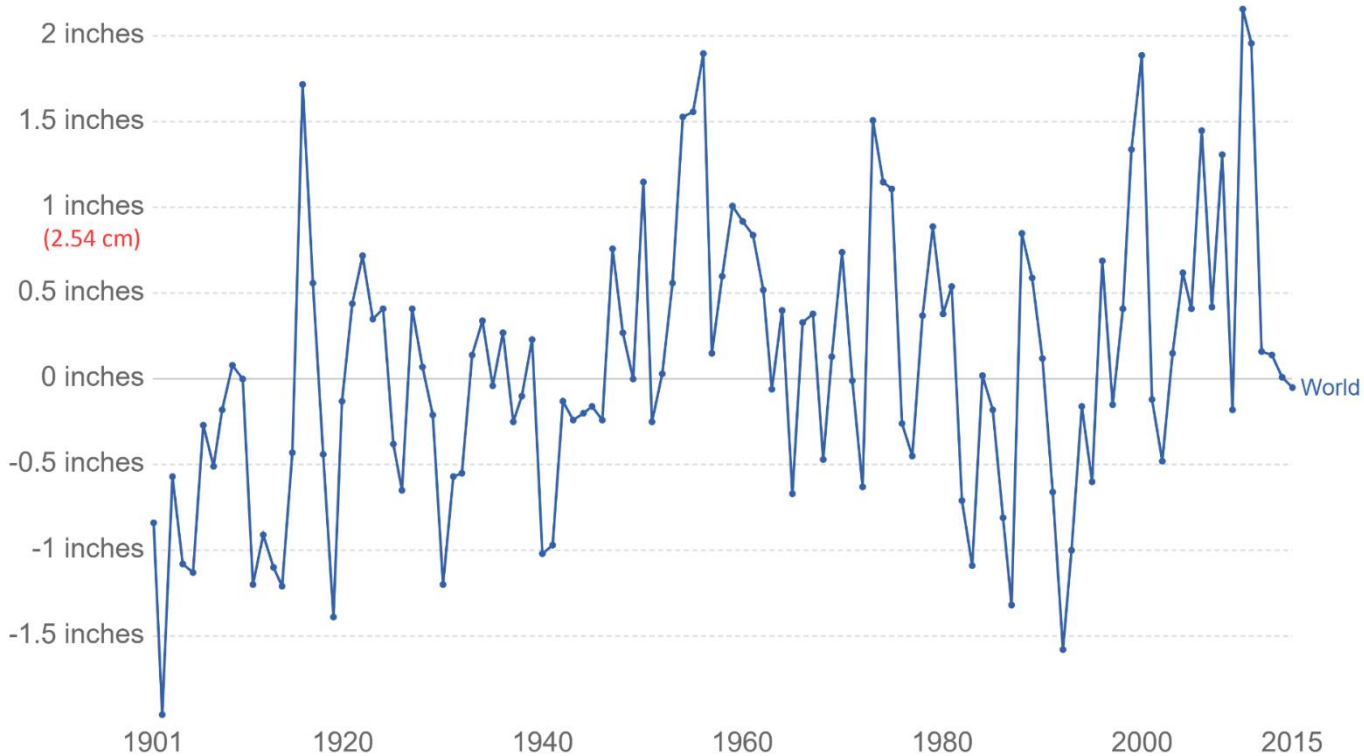


## Küresel yağış anomalisinin yıllara göre değişimi

### Global precipitation anomaly

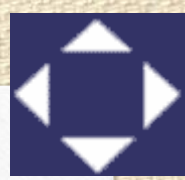
Our World  
in Data

This indicator shows annual anomalies, or differences, compared with the average precipitation from 1901 to 2000 based on rainfall and snowfall measurements from land-based weather stations worldwide. Global anomalies have been determined by dividing the world into a grid, averaging the data for each cell of the grid, and then averaging the grid cells together.

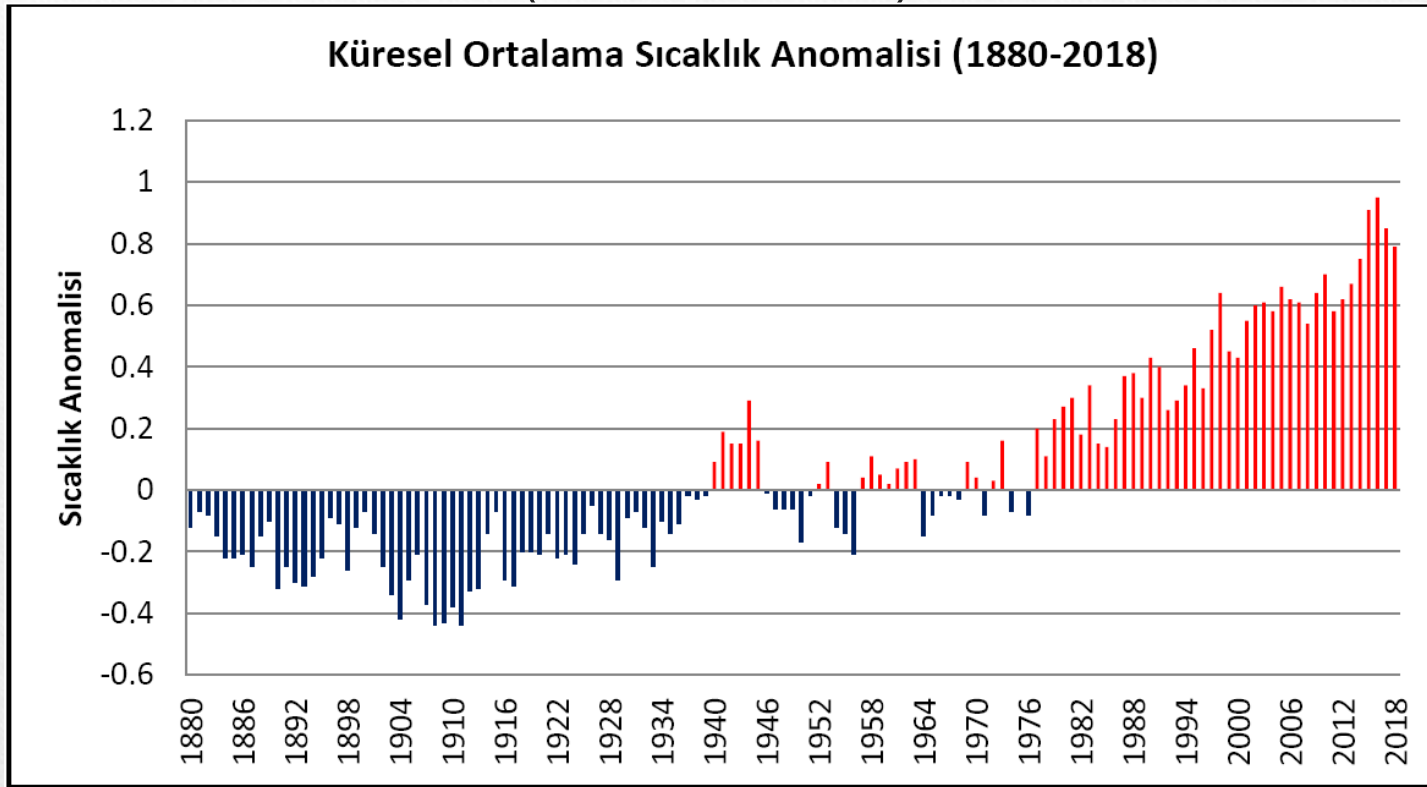


Source: National Oceanic & Atmospheric Administration (NOAA) via the US EPA

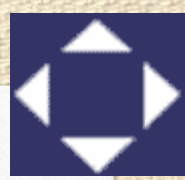
CC BY-SA



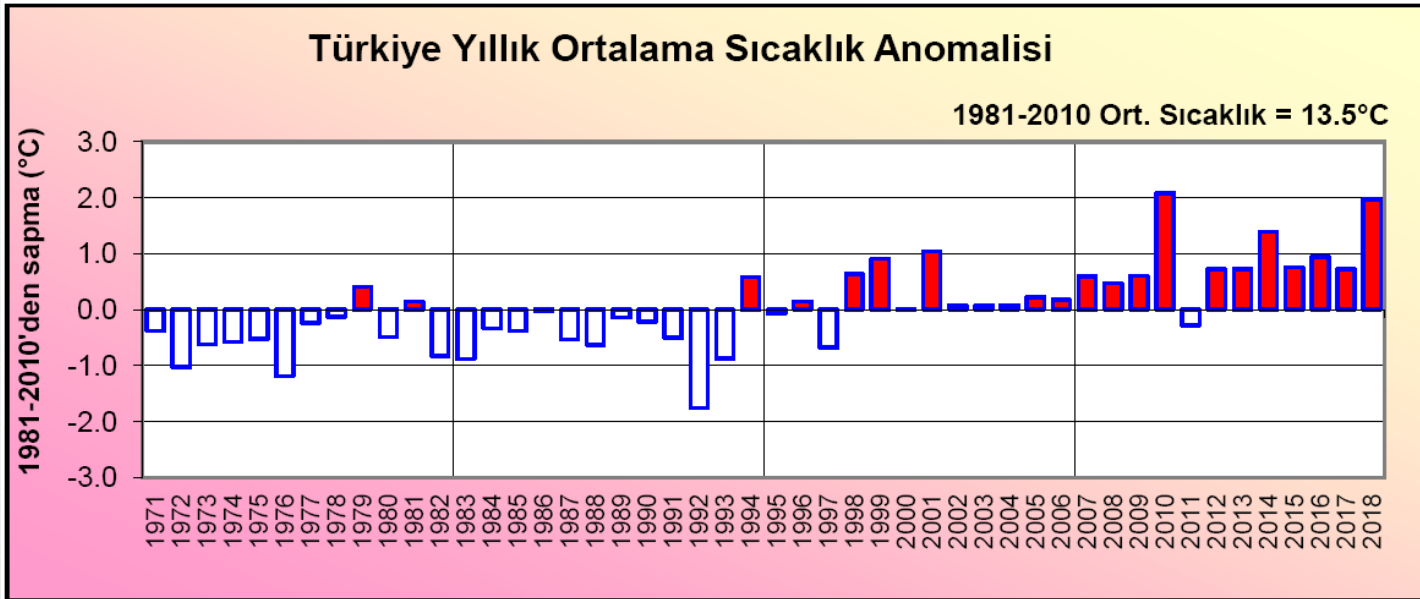
# Global Mean Temperature Anomaly (1880-2018)



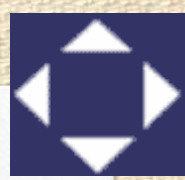
Kaynak: <https://mgm.gov.tr/FILES/iklim/yillikiklim/2018-iklim-raporu.pdf>



# Annual Mean Temperature Anomaly in TR



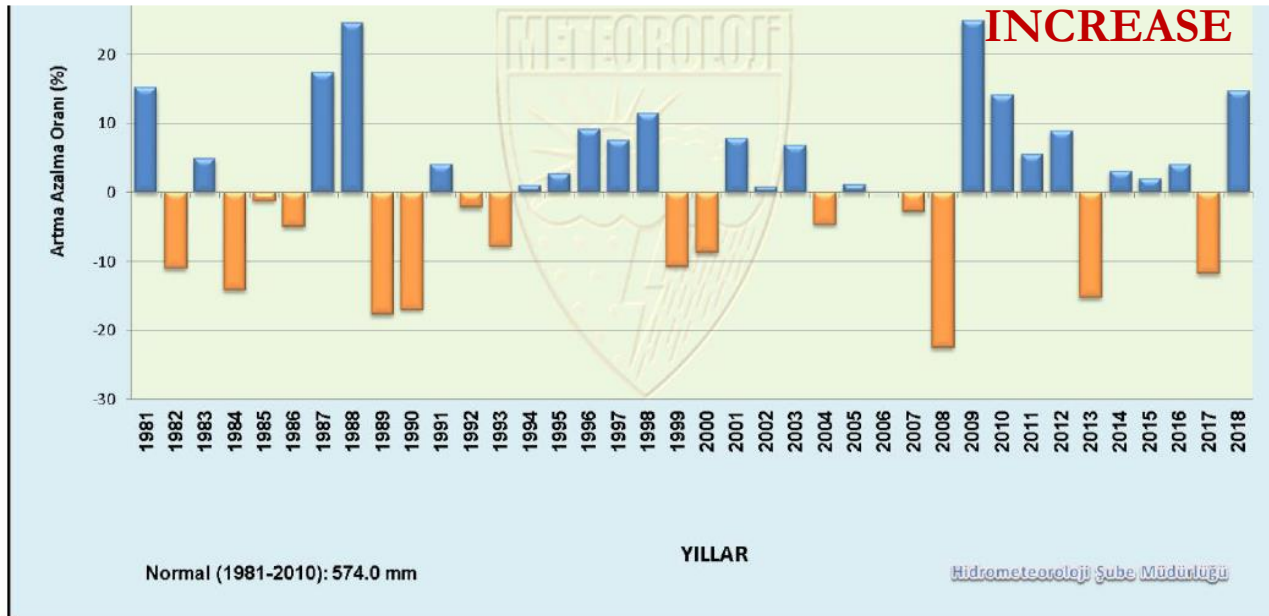
Kaynak: <https://mgm.gov.tr/FILES/iklim/yillikiklim/2018-iklim-raporu.pdf>

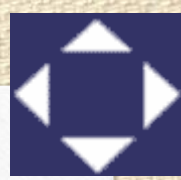


# Regional Rain Situation in 2018

## 2018 YILI ALANSAL YAĞIŞ DURUMU (1 Ocak 2018 - 31 Aralık 2018)

	Yağış (mm)	Normal (mm)	2017 Yılı (mm)	Normale Göre Değişim (%)	2017 Yılına Göre Değişim (%)
<b>Türkiye Geneli</b>	<b>658.7</b>	<b>574.0</b>	<b>506.6</b>	<b>14.8 ARTMA</b>	<b>30.0 ARTMA</b>



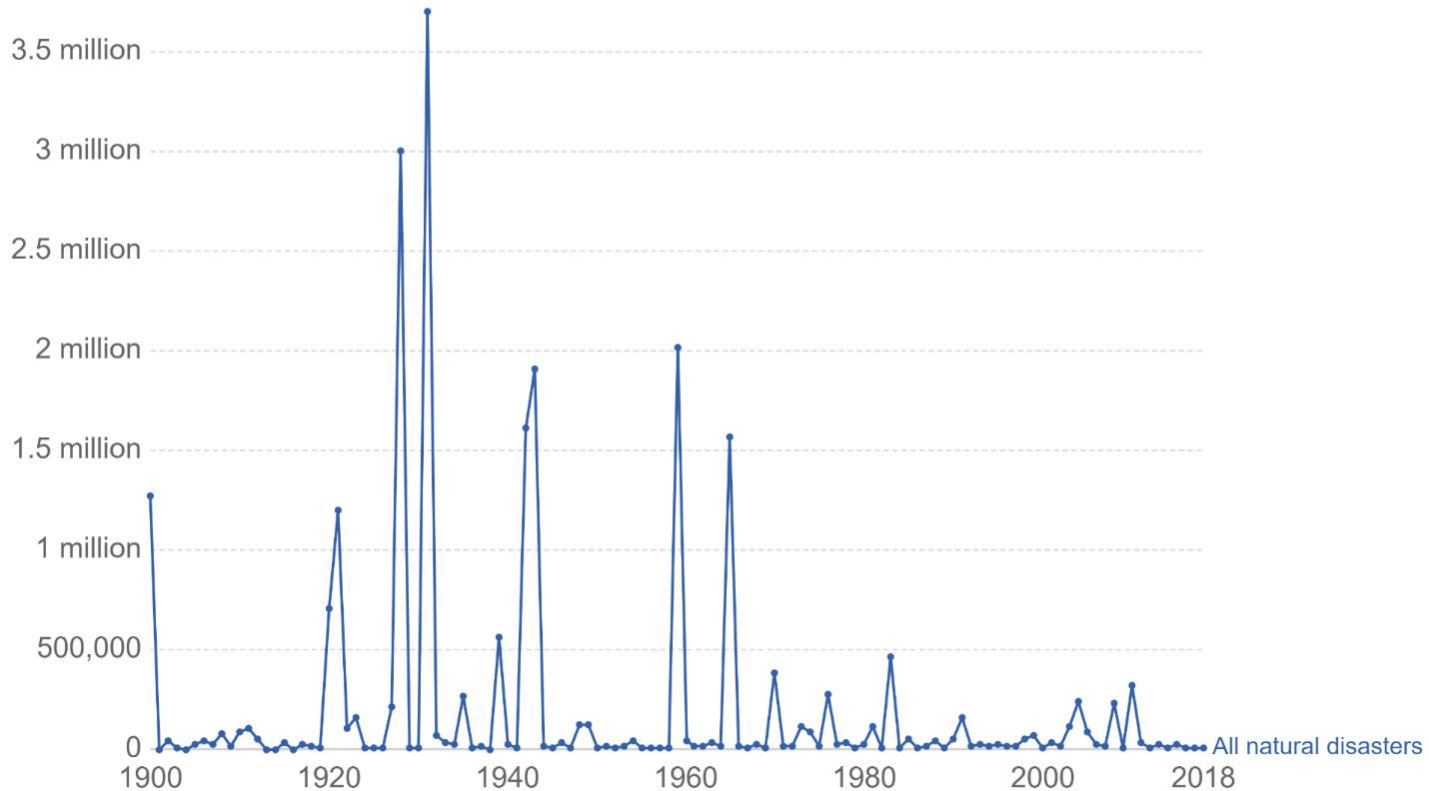


## Doğal kaynaklı afetlerde yaşanan can kayıplarının yıllara göre değişimi (1900-2018)

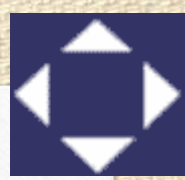
# Global deaths from natural disasters, All natural disasters

Absolute number of global deaths per year as a result of natural disasters. "All natural disasters" includes those from drought, floods, extreme weather, extreme temperature, landslides, dry mass movements, wildfires, volcanic activity and earthquakes.

OurWorld  
in Data



Source: EMDAT: OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium  
OurWorldInData.org/natural-disasters/ • CC BY-SA

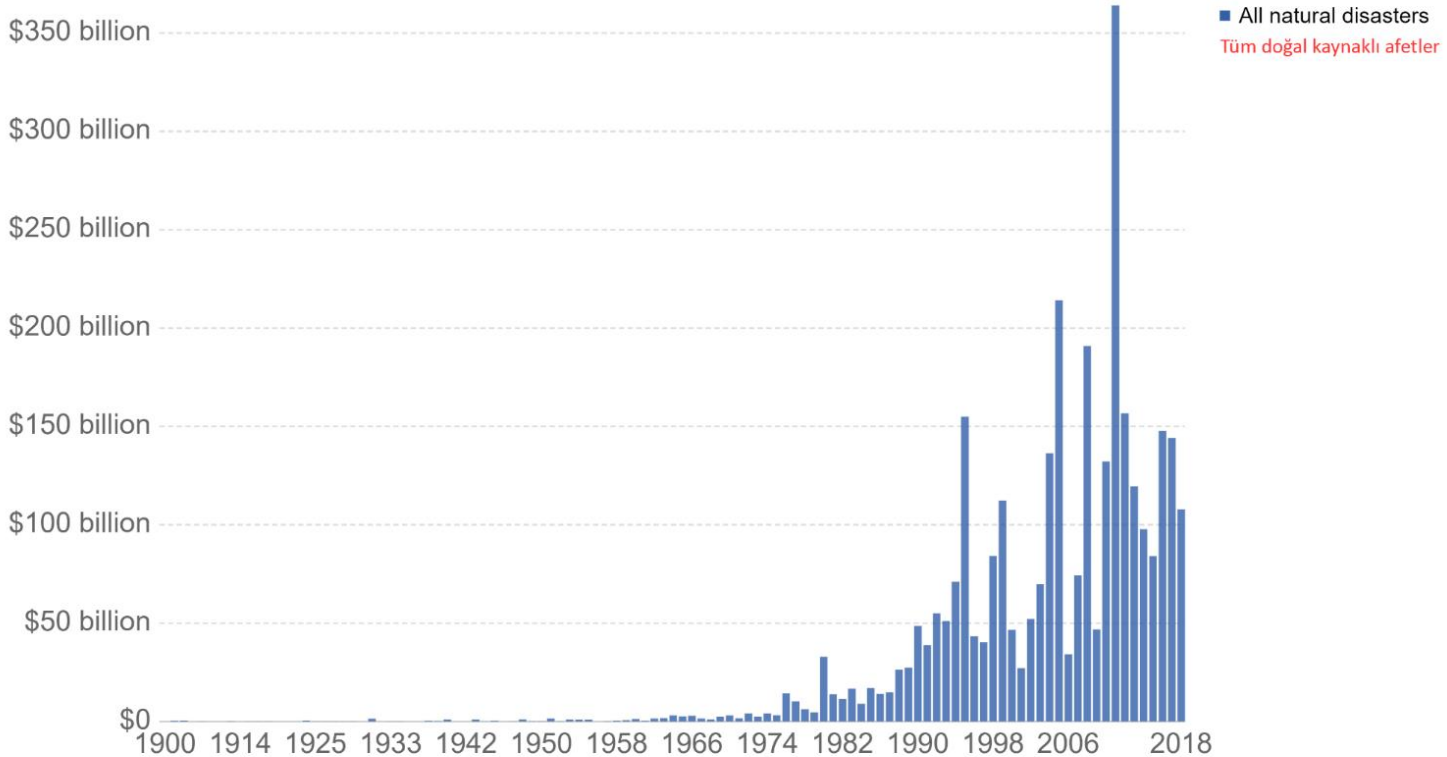


## Doğal Kaynaklı Afetlerin Küresel Kayıp Maliyetlerinin Yıllara Göre Dağılımı

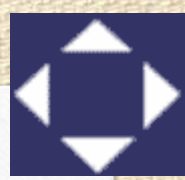
### Global damage costs from natural disasters

Total economic cost of damages as a result of global natural disasters in any given year, measured in current US\$. Includes those from drought, floods, extreme weather, extreme temperature, landslides, dry mass movements, wildfires, volcanic activity and earthquakes.

Our World  
in Data



Source: EMDAT: OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium  
OurWorldInData.org/natural-disasters • CC BY-SA

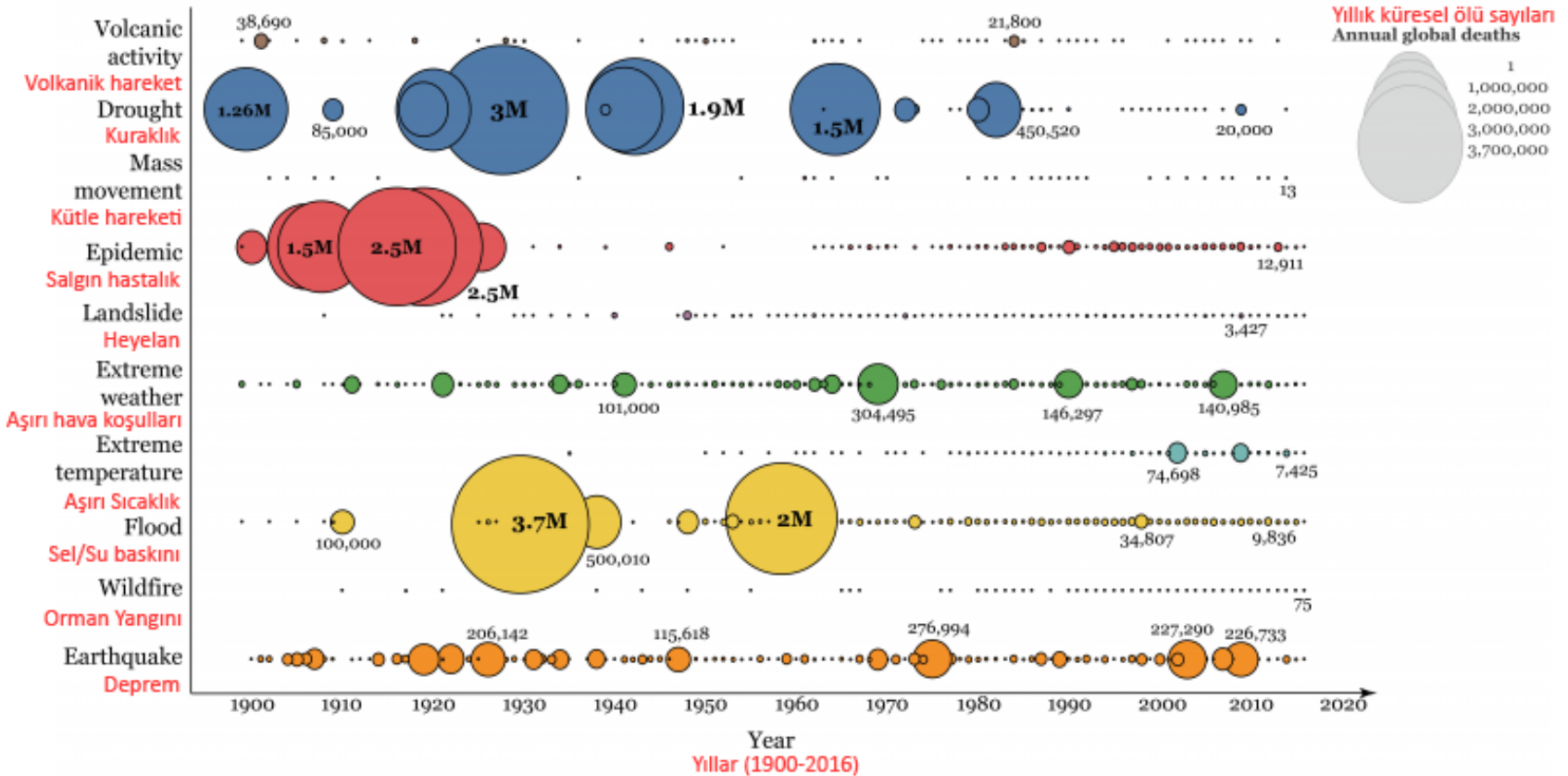


## Doğal kaynaklı afetlerdeki toplam can kaybının yıllara ve afetin cinsine göre dağılımı

### Global deaths from natural disasters, by type (1900-2016)

Global annual deaths from natural catastrophes, differentiated by disaster type from 1900 to 2016.  
The size of the bubble represents the total death count per year.

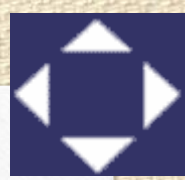
Our World  
in Data



Data source: EMDAT (2017): OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium.  
The data visualization is available at [OurWorldinData.org](http://OurWorldinData.org). There you find research and more visualizations on this topic.

Licensed under CC-BY-SA by the authors Hannah Ritchie and Max Roser.



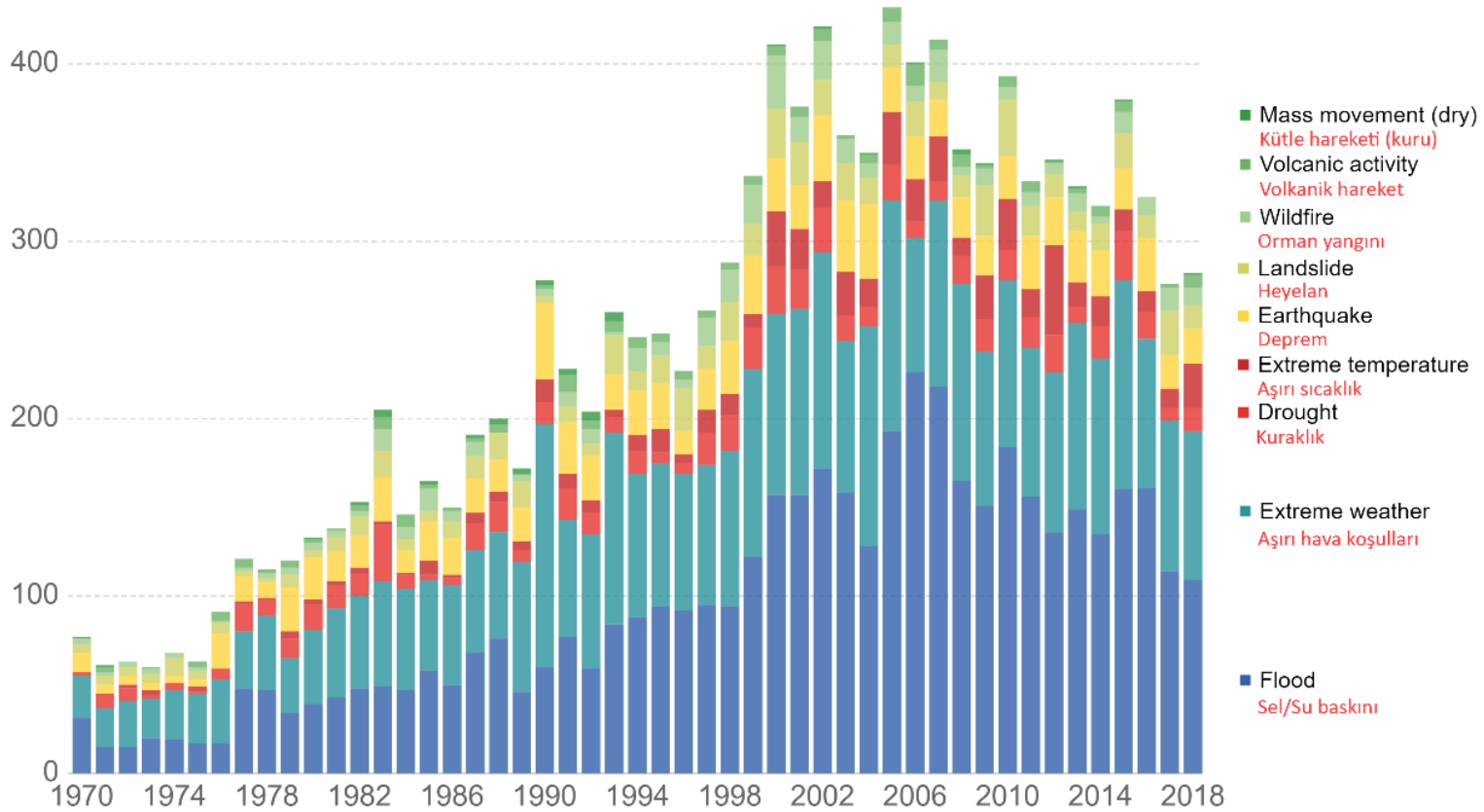


## Küresel olarak kayda geçmiş doğal kaynaklı afetlerin çeşitlerine göre dağılımı (1970-2018)

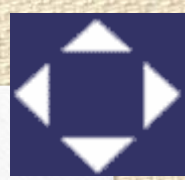
# Global reported natural disasters by type

The annual reported number of natural disasters, categorised by type. This includes both weather and non-weather related disasters.

Our World  
in Data



Source: EMDAT (2017): OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium  
OurWorldInData.org/natural-disasters • CC BY-SA



# Natural Events v.s. Naturally driven Disasters

- Events are natural but they turn into disasters due to human factor.
- Disaster Risk Management and Risk Reduction strategies are the ways to deal with disasters and to reduce possible damages before they occur.
- We are experiencing Climate Change these days a lot, so that in Turkey we should invest more on DRR strategies not only for earthquakes but also landslides, floods, avalanches and other meteorological induced disaster risks.
- Disaster Risk Management is the necessity since it provides;
  - systemic thinking and planning ability in order to understand and decrease uncertainties.
  - tools as scenarios for envisioning future uncertainties.
  - awareness among society by visioning scientific findings about future risks.
  - ways to implement policies for combatting possible effects on local population as being inclusive to most vulnerable groups as well.