Climatic events and the role of narratives in resilience

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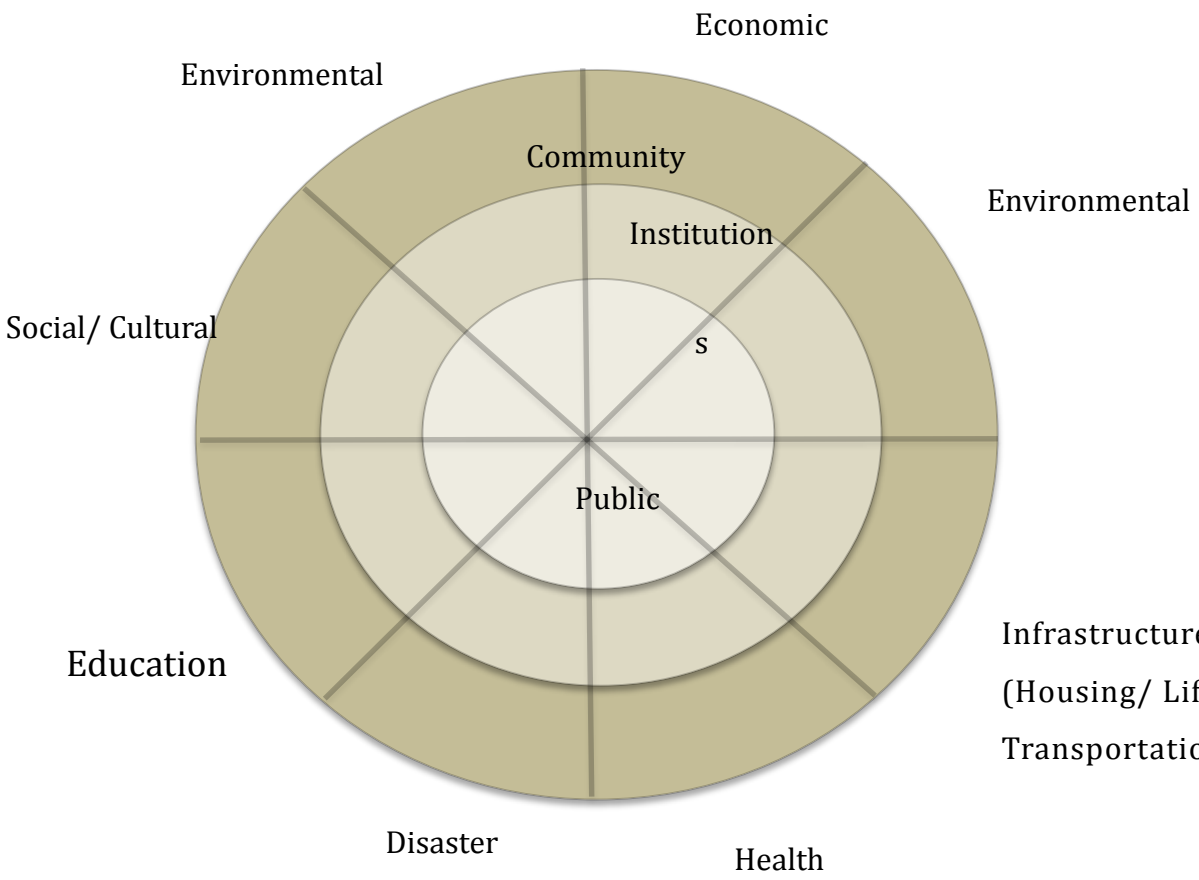
Outline

- Introduction
- Natural measurement of time
- Traditional measurement of time: sun, stars, climatic events
- Natural hazards in Oman
- The resilience wheel
- Role of narratives within the resilience wheel

Resilience wheel



(UNISDR, 2012)

NATURAL MEASUREMENT OF TIME

Times of the day, Mehri

- *fahag ~ ka-ffahag ḥāwalay* ‘first light’
- *ka-ffēgar* ‘dawn’
- *śūrēḳawtan* ‘first part of sunrise’
- *ka-śśarḳ* ‘sunrise’
- *ṣūbīḥan* ‘early morning after sunrise’
- *k-aṣōbaḥ* ‘in the morning’
- *ḏwēlēban* ‘early mid-morning’
- *ḏʔawban* ‘late morning’
- *nhūran* ‘hot part of day’
- *k-aṭahar* ‘midday’
- *k-azwūl* ‘just past midday’
- *ka-lʕasr ~ alʕasr* ‘mid-afternoon’
- *ġasrawwan* ‘late mid-afternoon’
- *ġasērēyan* ‘late afternoon’
- *kalʔaynī* ‘before sunset’
- *kalāʔāni* ‘early evening’
- *k-amgawzaʔ ~ agzēʔ* ‘once the sun begins to redden’
- *k-amaġrāb* ‘sunset’
- *k-aʕīśē* ‘when sky first fully dark’
- *bi-ḥallīyēn ~ ḥāwēl ḏ-aʔāṣar* ‘first part of the night’
- *bi-ḥallay* ‘at night’
- *nahdēt ḏ-aʔāṣar* ‘just before midnight’
- *faḳḥ ḏ-aʔāṣar* ‘midnight’
- *tōlī ḏ-aʔāṣar* ‘end of the night’

Traditional measurement of periods and dates

- Stars traditional time measurement in Arabia: *falaj* irrigation division at night (Al Ghafri 2008), identifying the season for crops, identifying when camel mare should be put in foal, season for abalone.
- Time through unusual climatic events: named after stars, place or event

STARS AS MEASUREMENT OF TIME IN AGRICULTURE

Table 3.4.5 The star set for irrigations timing in *falaj* Stall.

No	Name of star(s)	Number of *athars*
1	*al-Thuraiya* الثريا	2
2	*al-Dubran* الدبران	3
3	*al-Yameen* اليمين	3
4	*al-Shair* الشعاير	3.5
5	*al-Ganb* الجنب	2.5
6	*al-Thraa'* الضراع	3
7	*al-Farfarah* الفرفرة	2
8	*al-Mawatheeb* المواثيب	2
9	*Bu-Gabban* بو جبان	2
10	*al-Ghafar* الغفر	2
11	*al-Zabanat* الزبانات	2
12	*Kuwi* كوي	2
13	*al-Munsif* المنصف	2
14	*al-Tayer* الطاير	1.5
15	*al-Ghurab* الغراب	2.5
16	*al-Adam* الادم	2
17	*al-Sarah Al-Oula* الشعرة الاولى	2
18	*al-Sarah Alwusta* الشعرة الوسطى	2
19	*al-Sarah Al-Akhirah* الصّارة الاخيرة	2
20	*al-Kawkabain* الكوكبين	2
21	*al-Fateh* الفتح	2
1	*al-Thuraiya* الثريا	2
Total		**47 *Athars***

Table. 3.4.3 The star set for irrigations timing in *aflaj* of Samail (created from a text by Al-Abri, (undated)).

No	Name of star(s)	Number of *athars*
1	*al-Fateh* الفتح	2
2	*al-Thuraiya* الثريا	2
3	*Bu Qabil* بو قابل	2
4	*al-Shabik* الشابك	2
5	*al-Zhalmi* الظالمي	2
6	*al-Shaayir* الشعاير	2
7	*al-Ganab* الجنب	2
8	(*al-Dhira'* الضراع [1])	2
9	*al-Betain* البطين	2
10	*al-Thaqeelah* الثقيلة	2
11	*al-Muthab* المذاب	2
12	*al-Thakarain* الذكرين	2
13	*al-Ghafar* الغفر	2
14	*al-Zaban* الزبان	2
15	*al-Kuwi* كوي	2
16	*al-Qalb* القلب	2
17	*al-Munsif* المنصف	2
18	*al-Mufi* الموفي	2
19	*al-Ghurab* الغراب	2
20	*al-Adam* الادم	2
21	*al-Saarrah al Oula* الصّارة الاولى	2
22	*al-Saarrah al-Thaniyah* الصّارة الثانية	2
23	*al-Sa'ad* السعد	2
24	*al-Kawkabain* الكوكبين	2
1	*al-Fateh* الفتح	2
Total		**48 *Athars***

Specific divisions of time for irrigation in falaj al-Farsakhi (riba'), Samail (Al Ghafri 2008).

No	Riba' ربعة	Time		Total time (Hours)
		from	to	
1	*Al-Badwah* البدوة	4:15 pm	9:00 pm	4.75
2	*Al-lail* الليل	9:00 pm	3 :00 am	6.00
3	*Al-Athaan* الأذان	3:00 am	7:00 am	4.00
4	*Dhill* 66 ظل	7:00 am	11:00 am	4.00
5	*Al-Nisf* النصف	11:00 am	2:00 pm	3.00
6	*Al-Aakhir* الأخير	2:00 pm	4:15 pm	2.25

Crop and fishing seasons

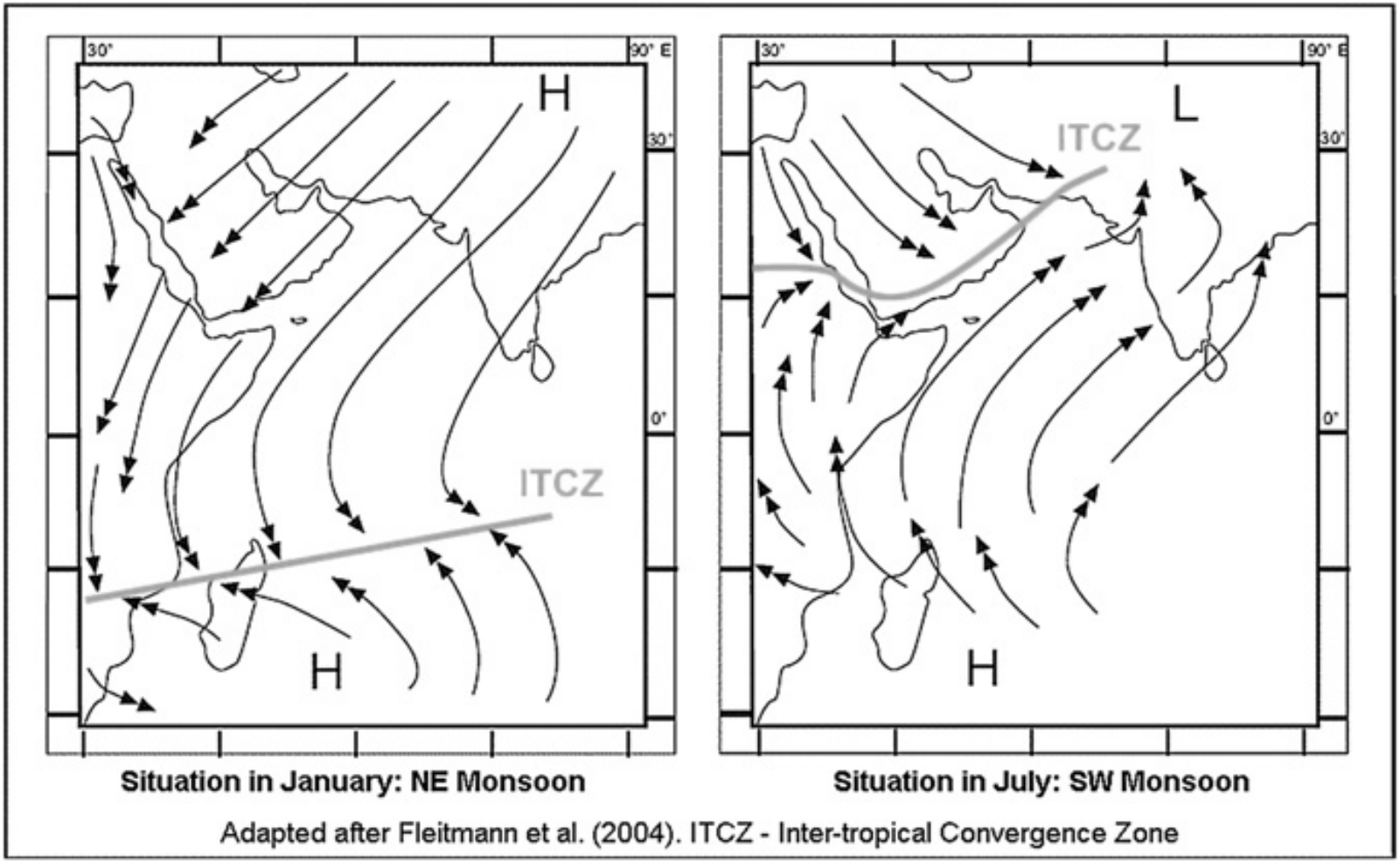
- North
- Kuwi: Good time for growing palms
- Al Dubran: Good time for growing wheat
- Dhofar
- Al Kaydhab to Al Haymar: abalone fishing
- Al BaTiin: Sardine, Kan’ad, Hamur

DHOFAR: CLIMATIC EVENTS AS MEASUREMENT OF TIME

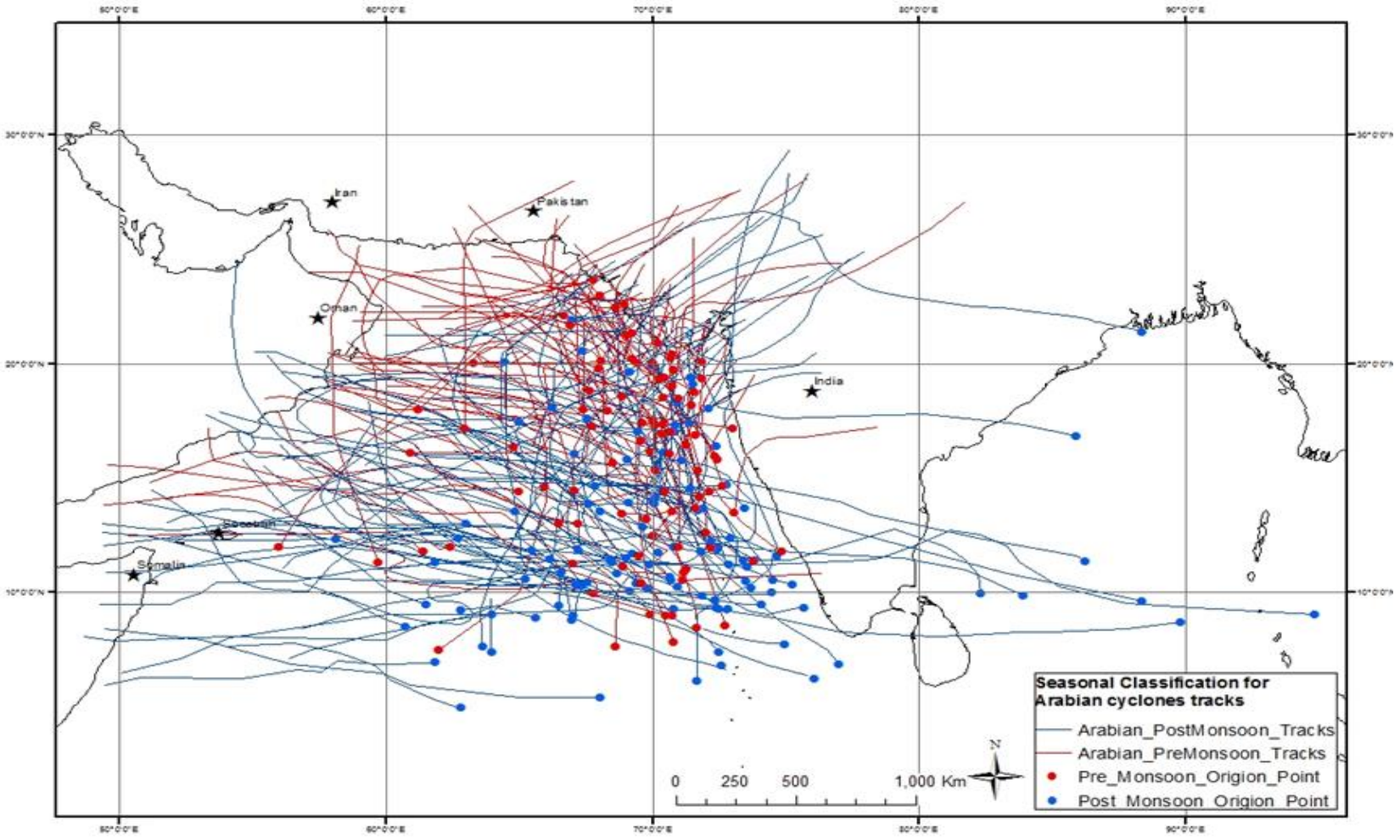
Measurement of time through climatic events

- *ʕuyūn ɛ-xēt* [years when monsoon rains failed]
- *ʕōnət ɛ-ḳaṣrɛri* [year of severe drought] (~1905)
- *ʕōnət ɛ-ḳamro* [year people left Jabal Qamar due to drought and headed east] (~1951)
- *ʕōnət aḥśarēt* ‘year of sorrow’ (~1968)
- *snēt ḏ-alḥaymar* ‘year of post-monsoon cyclone’ (1948)
- *snēt ḏ-aġarḳayyat* ‘year of drowning’ (1959)
- *snēt ḏ-abit fargīś* ‘year of the Fargiś family’ (1963)
- *jarfat bašārah* ‘the sweeping away of Basharah’ (1979)

CLIMATIC HAZARDS IN OMAN

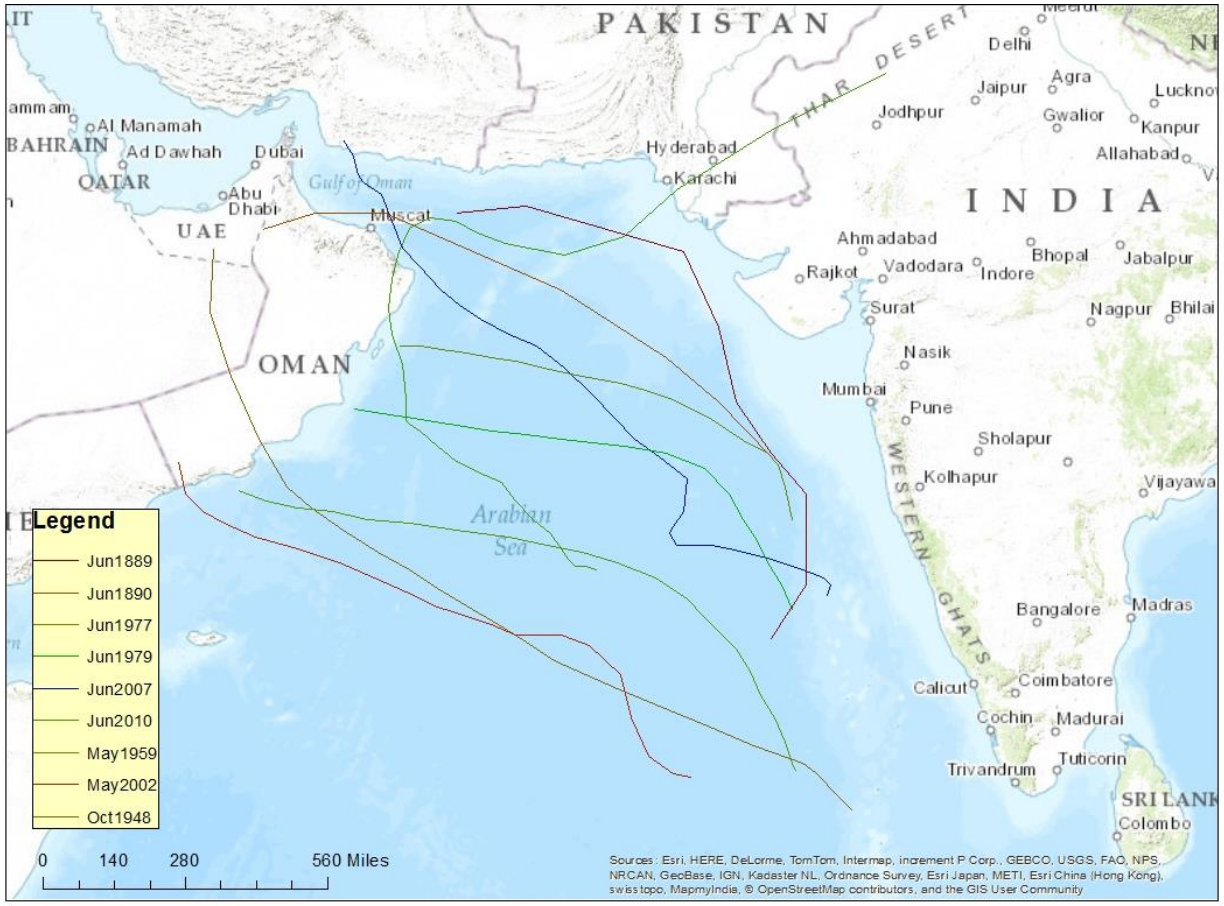


Scholte, P., & De Geest, P. (2010).



Seasonal distribution of Arabian Sea cyclone tracks by al-Manji

Notable Arabian Sea cyclones that have made a landfall along the coast of Oman (1890-2010)
Source; GIS base map, cyclone direction by al-Manji

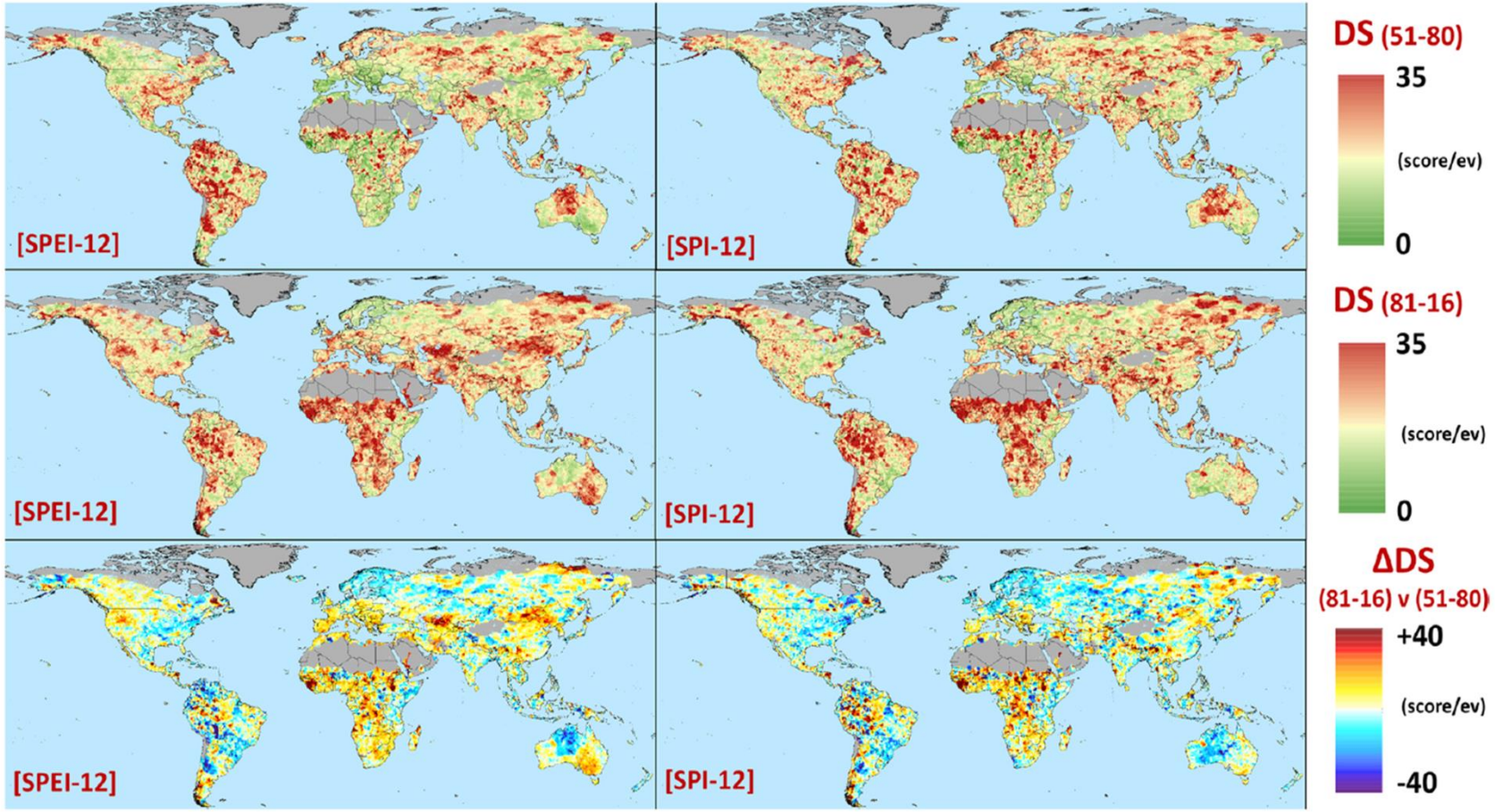


Flash flood “Is the amount of rainfall for a given duration over a small basin needed to create minor flooding (bank full) conditions at the outlet of the basin” (HRC, 2012).

Statistics for some notable recent floods in Oman
Source: www.dartmouth.edu/~floods

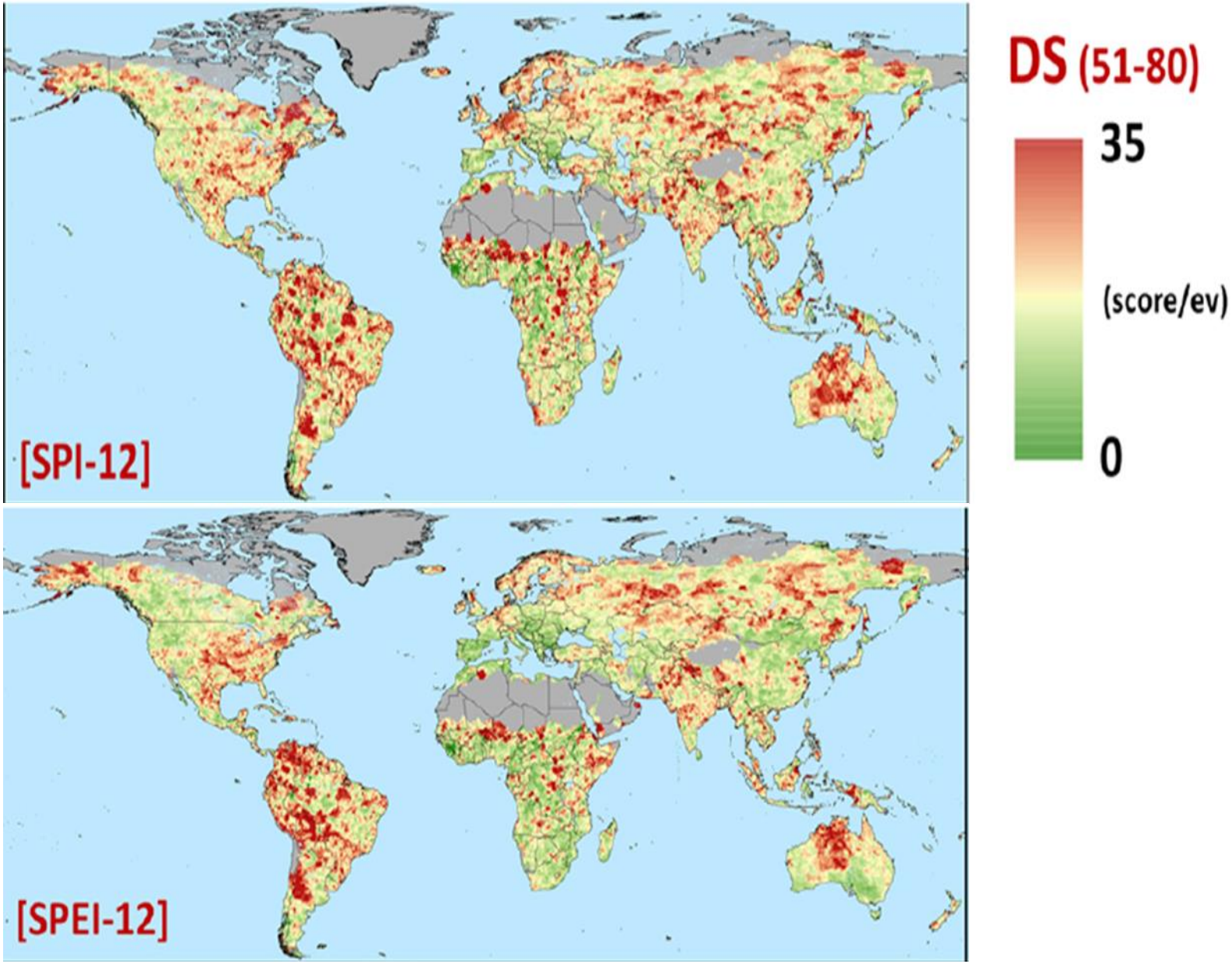
Year	Location	Duration	Dead	Displaced	Flood Reason
1989	Muscat	3	2		Depression
1997	Dibba	3	4		Depression
2002	Salalah	3	9	100	Tropical Storm
2003	Nizwa, Muscat	6	30		Depression
2007	Muscat	7	61	60000	Cyclone Guno
2010	Muscat	2	24	200	Cyclone Phet
2011	Muscat	2	16		Extreme Rainfall

DROUGHT IN DHOFAR

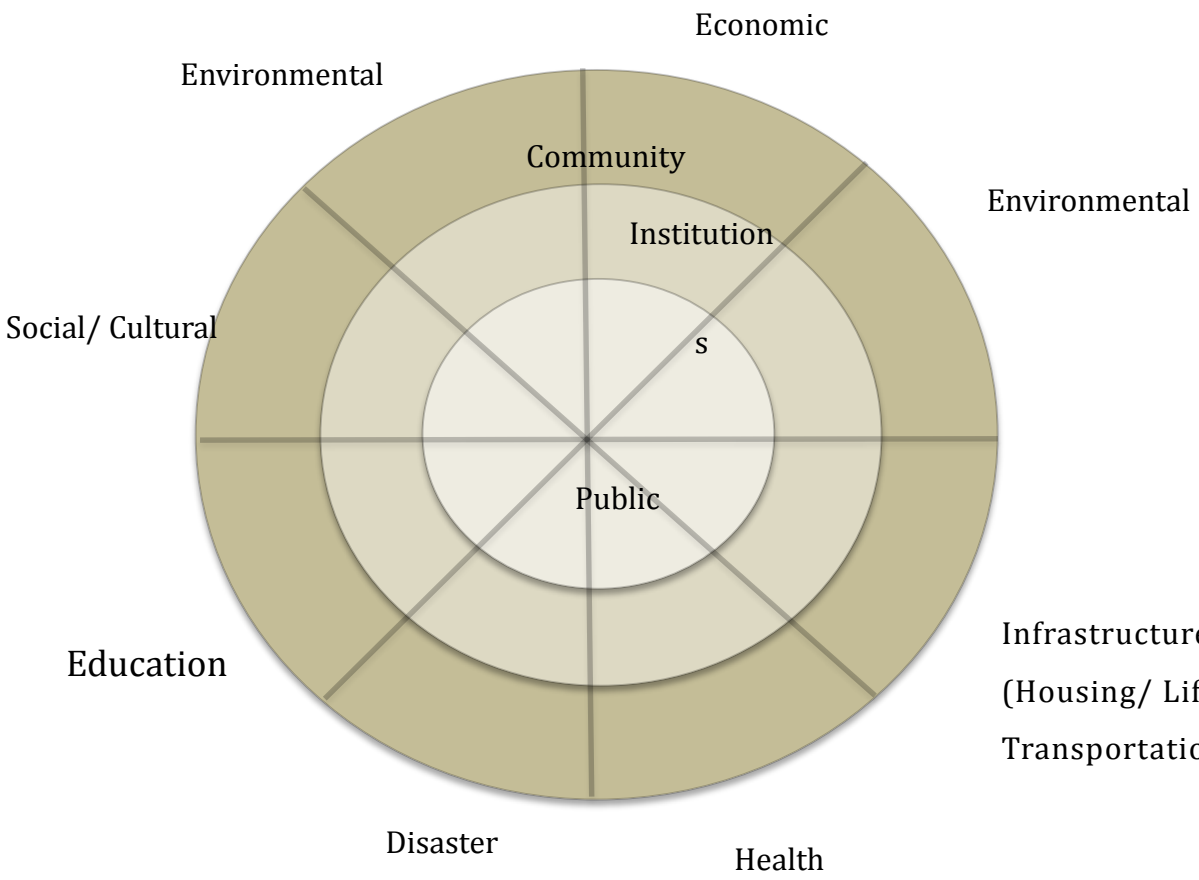


Average severity of drought events in 1951–1980 (upper boxes), in 1981–2016 (central boxes), and difference between the two periods (lower boxes), according to the SPEI-12 (left boxes) and to the SPI-12 (right boxes) (Spinoni et al., 2019).

Standardized precipitation index (SPI) and Standardized Precipitation-Evapotranspiration Index (SPEI) under climate change condition


DS (51-80)
35
(score/ev)
0
[SPI-12]
[SPEI-12]

Resilience wheel



(UNISDR, 2012)

Narratives within the resilience wheel

- Traditional ways of forecasting rain based on wind direction.
- Story about storage of grain in Qafifah.
- Narratives around the cyclones of 1890, 1948, 1959 and 1960s, and droughts.

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And you!