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Qur'an and Climate Change

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Abstract

Climate change is a serious issue that we must face. It requires action that goes beyond just scientific methods and includes insights from religious teachings. The Holy Qur'an, which often mentions weather and climate, hasn't been fully explored by religious scholars in this area. These texts show weather as a sign of God's power, and as a way to show kindness or punishment. This study suggests a fresh examination of the Qur'an's climate-related stories, looking for links with past weather events and God's messages. It argues that Islamic principles could help us address the climate crisis and encourages religious scholars to apply these ideas to current environmental issues. By examining the Qur'an's descriptions of climate across different regions and times, we aim to connect ancient warnings with today's scientific understanding. The paper calls for a combined approach, where religious perspectives enhance scientific research, leading to a sustainable way of living.

Keywords: *Climate change; Mitigation; Adaptation; Divine punishment; Qur'an.*

Introduction

The topic of climate change and its impact on our future has become a vital discussion in science, economy, politics, and security around the world. The current climate change is unique because it's mainly caused by human activities, especially the release of greenhouse gases like carbon dioxide from burning fossil fuels (Keeling et al. 1995). People today are more aware of climate issues, thanks to accumulated knowledge and technology (Hansen, Sato, and Ruedy 2012). Although some have denied climate change or its human causes, the growing evidence has led to a broad agreement that our actions significantly affect the climate (Corry and Jørgensen 2015).

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With over 1.9 billion Muslims globally, their collective actions are crucial in reducing and adapting to climate change's effects. Islamic teachings in the Qur'an can lead followers in caring for the environment. The Qur'an stresses the importance of maintaining nature's balance and our role as Earth's caretakers, providing a solid basis for environmental awareness. This view is supported by many verses that remind us of God's power, seen in weather and climate patterns. Integrating Islamic principles with climate action could significantly influence many people's efforts towards sustainability.

Climate change affects many areas, including the environment, society, politics, health, and security (Wilby 2007). It can cause disasters like floods, hurricanes, droughts, and disease outbreaks, leading to severe social and economic issues, such as increasing poverty, inequality, food scarcity, and displacement (Tol et al. 2004). These challenges can also alter people's beliefs and values (Haluza-DeLay 2014). However, the impact of climate change on religion and beliefs often goes unnoticed.

Islamic scholars seem to underestimate the seriousness of climate change. This article aims not to interpret Qur'an verses, as the author is not a specialist in this field. Instead, it seeks to draw the attention of Qur'an interpreters and Tafsir experts to the Qur'an's potential role in climate action. Islamic beliefs give strong reasons for followers to recognize climate change and its consequences, and to actively work to lessen and adapt to its impacts. The Qur'an clearly shows the importance of climate change and the need for attention, through its stories. This research suggests that Qur'an verses may be based on actual historical climate events, as identified by geoscientists. It also proposes that there's a link between modern scientific warnings about climate change and the warnings from ancient prophets. This study will examine these ideas by comparing Qur'an verses with scientific data and insights. The goal is to understand how religious advice can contribute to environmental protection and encourage Islamic scholars to participate in climate action. The study argues that the Qur'an's focus on weather and climate events could motivate religious leaders to address climate change challenges, especially if they build stronger connections with the scientific community.

Climate and climate change

Climate, as defined by R.A. Pielke Jr (2004), is a statistical concept encapsulating the average of long-term meteorological measurements such as temperature and precipitation. At least thirty-year timeframe is crucial for a comprehensive understanding of climate of a particular region (R.A. Pielke Jr 2004). Our understanding of climate involves benchmarking of current measurements against the average measurements of meteorological parameters

during the last 170-years, the period of instrumental measurements of meteorological variables. Instrumental measurements have enabled us to record the parameters in a standard way. These data reveal an overall warming of the planet by an average of 1.1 °C during this period (Pörtner et al. 2023). While this might seem modest at first glance, this increment represents an extraordinary amount of energy that trapped in the atmosphere, holds the potential for profound alterations to the Earth's surface. However, it is essential to recognize that climate change is usually imperceptible to human senses within the span of a single lifetime (Clayton 2019). The comprehension of climate change today is indebted to the availability of various instruments enabling the measurement of meteorological variables. An additional facet of climate change manifests in the escalation of extreme events such as heatwaves, extreme cold snaps, frost, floods, storms, algal blooms, pest infestations, and droughts that are more sensible for human kind (Clayton 2019). Throughout climate change, the intensity and frequency of these occurrences increase, signifying a profound impact on the human being (Stott 2016).

For climatic condition predating the instrumental measurement, geoscientists have used geological proxies to document many climate changes in Earth's history (Ruddiman 2001), some of which coincided with important human historical events (Zhang et al. 2007). From 11,700 years ago (the Holocene), global climate warmed and started the interglacial period with relatively stable climatic conditions. The start of the Holocene epoch is coincident with the beginning of neolithization process which happened in northern Mesopotamia (south of today Turkey) and spread all over the world (Dietrich, Notroff, and Schmidt 2017). Melting ice raised sea levels to the current level around 6500 years ago (Lambeck 1996) and a major climatic shift happened around the mid-Holocene in Northern Hemisphere, coincident with the formation of early state societies in southern Mesopotamia (south of today Iraq) (Lambeck 1996; Willcox, Buxo, and Herveux 2009). In addition to these climatic shifts, several other natural climate events happened in different spatial and temporal scales all around the world (Ruddiman 2001). These changes are more or less coeval with critical developments in human history such as the demise of Akkadians around 4200 years ago in Mesopotamia (Cullen et al. 2000) and the emergence of Islam during the Late Antiquity Little Ice Age (LALIA), spanning between 1490 to 1350 years ago (Büntgen et al. 2016).

Method

This study uses a qualitative research approach, relying on library resources as the main data source because of the emphasis on examining the text of the Qur'an. An extensive examination of geoscientific literature has been carried out to identify links with Qur'anic verses that refer to climate and climate-related consequences.

Result and Discussion

In the Qur'an, various weather phenomena such as clouds, wind, and rain are highlighted as signs of divine power and mercy (e.g. Al-Shoura 42:33, 28; Al-Roum-30:48; Hud 11:52; Al-Bagharah-2:164; Al-nour24:43; Al-A'raf 7:57; Al-Dhariyat 51:2; Al-Naba'78: 14; Fater 35: 9; Al-Ra'd 13:12). These elements are considered manifestations of God's blessings and abundance in multiple verses. However, there are other verses mentioning divine punishments in the form of climatic events for those who ignore divine signs. Tribes like the people of Noah, Aad, Thamud, Al-Ras, Madian, Ikeh, Saba', and Pharaohs of Egypt faced such torments due to disobedience. The Qur'an describes specific climatic events, including winds turning like ashes, lightning, storms, drought, reduced crops, and flooding, as divine punishments.

Climatic Divine Punishment in the Qur'an

In the narratives of the Qur'an, the prophets are consistently depicted as being sent by God to forewarn people of impending events, urging a change in their conduct and an awareness of the manifestations of divine might. For instance, in Surat Noah (71:1), the text proclaims: "Indeed, We sent Noah to his people, declaring: 'Warn your people before there arrives a grievous chastisement upon them.'" The Quran frequently presents cautionary messages, as evidenced in verses such as Ash-Shu'ara (26:189) and Al-An'am (6:158). These warning messages convey that when societies and their disregard the "orders", they are subsequently met with punitive measures in the form of environmental disasters. In these stories, the repeated warnings from prophets and the consequences that follow serve as lessons, highlighting how important it is to respect other people, the environment and God as the creator of all of them. This message doesn't just teach us; it also strengthens the idea that living in harmony with every part of nature is crucial (Surat Al-An'am 6:38; Surat Al-An'am 6:38; Surah Al-An'am 6:38). In the rest of this article we will focus more on the Qur'anic stories related to the people of Noah, Aad, Thamud, Saba' and Pharaohs of Egypt.

The people of Aad faced destruction from a devastating wind described clearly in Surat Al-Dhariyat (51:41-42). They were punished for their arrogance, idolatry, and rejection of the prophets sent by God. Although they built strong

buildings, and achieved advanced civilization, they were punished due to corruption and transgression. For example, Surat Al-Haqqah (69:6-7) describes how a devastating wind was unleashed upon the Aad people for seven nights and eight days, which obliterated them, leaving them like uprooted palm trunks. Moreover, Surat Al-Qamar (54:18-19) recounts how the Aad people denied their messenger and were struck by a day of continuous misfortune, a gale that annihilated them.

Thamud experienced torment through lightning (Surat Fussilat 41:13, 17). They incurred divine punishment due to their disbelief, arrogance, and rejection of the prophet Salih, who was sent to guide them. They were also punished for harming the she-camel sent by God as a sign, which they were commanded not to touch (Surat Al-A'raf 7:73-79; Surat Hud 11:61-68; Surat Hud 11:61-68; Surat Fussilat 41:13).

Noah's people perished by a massive flood (Al-Furqan 25:37; Hud 11:11; Al-Ankabut 29:14). Despite Noah's persistent efforts, his people refused to heed his warnings and finally they punished for their persistent disbelief (Surat Nuh 71:1; Surat Hud 11:32, 36-37; Surat Al-A'raf 7:59).

Egypt's Pharaohs encountered drought and reduced crops (Surat Al-A'raf 7:130). Despite facing storms, grasshopper and mite attacks, and the swelling of the Nile River, the Pharaohs persisted in ignoring divine signs (Surat Tā Hā 20:56; Surat Al-A'raf 7:133). Their disbelief continued until God sent a massive flood, as recounted in Surat Al-A'raf 7:133-136; Surat Al-Qasas 28:8; Surat Al-Anfal 8:54; Surat Al-Isra' 17:103 and Surat Al-Baqara 2:50.

The fate of the people of Saba' is another intriguing case mentioned in Surat Saba' (34:15, 16). Turning away from "God's Orders", they experienced a flood of Arim that altered their once fruitful gardens into bitterness and desolation (Saba', 34:15, 16).

The Time and Place of the Divine Punishments in the Qur'an

Regarding the timeline of events, the Qur'an suggests that the people of Noah lived before the people of Aad and Thamud, and Noah's time predates Abraham's (Ali 1990). While certain tribes and events are mentioned, the precise time and location remain uncertain and subject to interpretation. However, the West Asia and North Africa regions, including the Arabian Peninsula, Mesopotamia, Levant and Egypt are the most probable areas of the Qur'an's stories (Figure 1).

The narrative about the people of Saba' (Sheba) in Surat Saba' and Surat Namal leaves room for interpretation. However, scholars believe they lived in present-day Yemen based on archaeological findings (Mark 2018). On the other

hand, references to Thamud place them in the northeast of Arabia on the Red Sea coast (Roohangiz 2006), and the Aad people are associated with areas near contemporary eastern Oman (Clapp 1999). The living place of Noah people varies largely and mixed with myths. It varies from the Caspian Sea, Black Sea, northern Mesopotamia and the Persian Gulf (Dynes 1998).

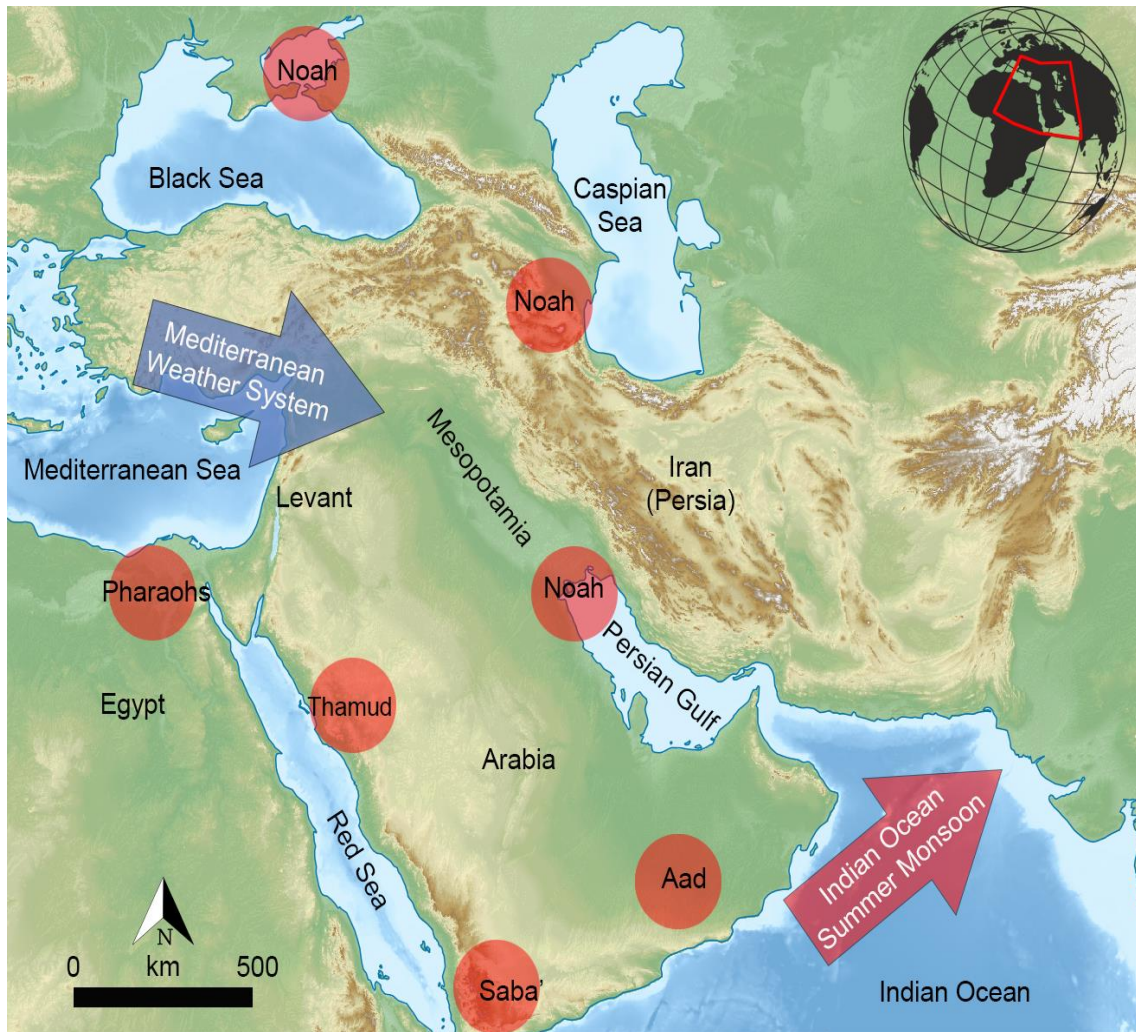


Figure 1. The West Asia topography map and the main weather systems that influence this area (the arrows and the text within them). The most possible places for the Qur'an stories are shown by circles.

The Past Climate Events in West Asia

The region of Western Asia, which is likely the setting for many of the narratives found in the Quran, lies at the heart of the Earth's desert belt and is currently characterized by extreme arid conditions – abundant sunlight, minimal rainfall, and high evaporation rates. However, over the last thousands of years, the region has experienced different climatic conditions (Fleitmann et al. 2003) that were closely related to human development (Kennett and Kennett 2007). For example, between approximately 9200 and 6300 years ago, the Arabian Peninsula was greener than today due to more precipitation receiving from the Indian Ocean Summer Monsoon (Parker et al. 2006).

This led to the proliferation of vegetation adapted to summer rains. Conversely, during this period, most of the Mesopotamia (Iraq) was drier than today and the Tigris and the Euphrates rivers were smaller than today (Stevens, Wright Jr, and Ito 2001). Around 6300 years ago, a significant climate shift occurred in the West Asia region (Fleitmann et al. 2003). Arabia underwent aridification, and the once-vast Rub' al-Khali Lake dried up (Parker et al. 2004). Vegetation in a considerable part of Arabia disappeared, and instead the Mesopotamia experienced wetter condition (Stevens, Wright Jr, and Ito 2001). Notably, the Tigris and Euphrates catchments basins have received more precipitation especially as snow during the winter, and the rivers became more voluminous (Stevens, Wright Jr, and Ito 2001). However, this condition was being abrupted several times by climatic instabilities such as a prolonged drought around 4200, 3200 and 1600 years ago (Fleitmann et al. 2022; Kaniewski et al. 2008; 2019).

Scientific Clues of the Divine of Punishments

Noah's Flood

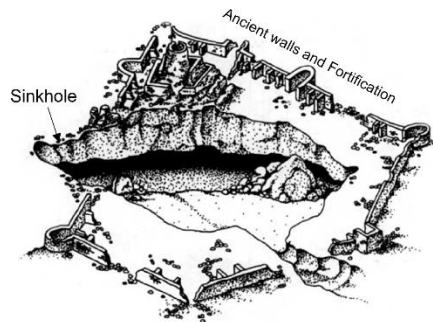
Archaeological studies in the ruins of the great library of Nippur in the mid-19th century led to the discovery of clay tablets detailing narratives of a significant storm in Mesopotamia (Figure 2). Similar stories of a great deluge are found across ancient global sources, indicating striking similarities (McDonald 2018). The tablets uncovered in Nineveh, Iraq, attributed to the ancient Mesopotamian civilizations, provide an account of a massive flood (Figure 2). Notably, parts of this narrative appear on ancient clay tablets dating back to 5300 years ago, making the Mesopotamian flood account more than 5300 years old (Dalley 1998).

Speculations about the flood's location abound, with some narrowing it down to the Mesopotamian region, particularly involving the Tigris and Euphrates rivers' inundation (Dalley 1998). Notably, around 6300 years ago,

predating the Sumerian inscriptions, a significant climate change unfolded in West Asia, marked by the dominance of the Mediterranean climatic system in the region (Figure 1). This shift likely resulted in increased rainfall in the Tigris and Euphrates sources situated in the headwater areas. Such climatic changes could have given rise to large floods, potentially aligning with narratives of a major storm in Mesopotamia during that period. This change in climate behavior was likely accompanied by significant floods that astonished the inhabitants of Mesopotamia. Perhaps the references to the colossal storm are linked to an incident associated with such climate changes.

Speculation on this matter also traces back to the inundation of the worldwide coastal areas in the post-glacial period that accelerated between 9,200 and 7,000 years ago (Figure 3). As land ice melted during late glacial and post-glacial periods (from 15000 years ago), the sea level experienced a two-phase rise of 130 meters, leading to the submergence coastal areas worldwide including the exposed basin of the Persian Gulf (Teller et al. 2000). Recent studies indicate that this substantial flood reached areas the west of the Persian Gulf around 8,800 years ago, reaching Al-Amara in southern Mesopotamia (today Iraq) approximately 7,000 years ago (Teller et al. 2000; Beni et al. 2024; Heyvaert and Baeteman 2007). Moreover, this significant rise in global sea level led to complete formation of the Black Sea around 7,500 years ago (W.B. Ryan et al. 2003).

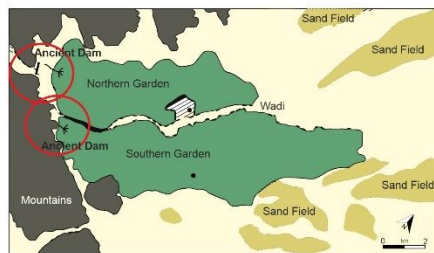
Simultaneously, as ice melted in northern latitudes, contributing to the flow into the Caspian Sea basin, the water level in this lake rose significantly, resembling a flood that reached the Black Sea (Ergun 2021). Global evidence of rising sea levels, including recorded instances in North America and various regions worldwide (Herget and Fontana 2019), supports the idea of worldwide submergence of coastal areas. Coastal areas are vital habitats for early human societies due to their accessibility to water and food (Lahijani et al. 2016). The narrative of the great storm, found in numerous parts of the world, may indeed be linked to major phases of the rising sea levels, echoing through generations until it was documented in Sumerian clay tablets.



A) Archaeological ruins of fortification around an ancient city buried under wind blown deposits in eastern Arabia in Rub' al Khali, Oman that linked to Aad people by Clapp (1990)



B) Ruins of ancient structures in Arabia linked to Thamud people, more related to Nabateans (Wilkinson, 2003)



C) a map showing the position of Saba' dams and the two gardens mentioned in Qur'an based on archaeological investigation of Wilkinson (2003)



D) Ruins of Marib dam in Yemen, linked to Sabaean people (Wilkinson, 2003)



E) Ruins of Marib dam in Yemen, linked to Sabaean people (Wilkinson, 2003)



F) 11th tablet of Mesopotamia story of Great Flood in Epic of Gilgamesh found in Iraq (British Museum)

Figure 2) Figures of some archaeological evidence of Qur'anic stories in different parts of the West Asia, particularly the Arabia

Thamud

The term "Thamud" in Arabic translates to "desiccation" and aligns with the geological term "playa," signifying an ephemeral lake that dries up in summer (Roohangiz 2006). When exploring the Thamud tribe archaeologically, Roohangiz (2006) considers the oldest evidence of their existence to be around 2900 years ago. The latest documented evidence of their presence in the Arabian Peninsula dates back to the 1st century AD, found in Greek documents (Roohangiz 2006). This implies a history spanning a thousand years for this people. Research into the tribe's location places them in the northwest region of

the Arabian Peninsula, strategically positioned along the trade routes connecting the cities of Mecca and Medina in Arabian Peninsula, and Shamat (Levant).

Ancient texts, such as Babylonian records from Mesopotamia about 2650 years ago, directly reference the Thamud people residing in the peninsula (Roohangiz 2006). Given the lack of archaeological evidence in Arabia directly linking to the Thamud tribe, Roohangiz (2006) suggests that the archaeological works attributed to the Thamudites in the Arabian Peninsula are often conflated with those of the Nabateans (312 BC to 106 AD), who governed the area subsequent to the Thamudites (Figure 2). Consequently, she showed that the events involving the Thamud people occurred between 2650 and 2900 years ago in the northwestern region of the Arabian Peninsula (Roohangiz 2006).

The study of Khor al-Kharrar, situated along the Red Sea shores and within the approximate territory of Thamud people indicates that during the first century AD, coinciding with the disappearance of archaeological evidence linked to the Thamud people, the region underwent warmer conditions, and the Red Sea reached its maximum level in this vicinity (Bantan, Abu-Zied, and Al-Dubai 2019). The rise in the Red Sea's level and the aridity of the air in the sediments of Khor Shuaiba, south of Jeddah, has been documented as well (Abu-Zied and Bantan 2015). Archaeological investigations into petroglyphs in the Al-Shuwaimis region of northwestern Arabia further validate shifts in lifestyle and domestic animal species from 2900 years ago to the first century AD (Guagnin et al. 2016). Despite these changes, there is no sedimentological evidence of a severe climatic event during this period in this region.

Roohangiz (2006) cites an account suggesting that after the Thamud people killed a red-haired she-camel, Saleh (AS) foretold their imminent divine punishment. He predicted a sequence where their faces would turn yellow on the first day, red on the second day, and black on the third day (ref Qur'an) – an eerily accurate description of the progression of plague. Plague, an infectious bacterial illness transmitted by rodents and fleas, manifests through symptoms like skin bleeding, shock, and overall bodily failure. This ailment often correlates with climatic changes, with some studies proposing that warmer and wetter conditions can boost rodent and flea populations, contributing to the spread of the plague (Stenseth et al. 2006). However, a comprehensive understanding of the link between plague spread and environmental changes necessitates further research.

Aad

Studies and findings suggest that the Aad tribe likely inhabited the east of the Arabian Peninsula, specifically the present-day Rub' al-Khali area (Daulat , Jamal , and Qasim 2014) (Figure 1). Explorations for Aad people's traces in the outskirts of the Rub' al-Khali region in Oman resulted in the discovery of an area with numerous towers and ramparts, much of which remained concealed under wind-blown deposits (Clapp 1999). Researchers identify this region as Ubar, Wabar, or Eram, the seat of the Aad people (Figure 2). Archaeological evidence indicates that the age of these structures dates back over 2900 years (Clapp 1999). Notably, a large sinkhole in the center of this area has engulfed significant portions of this citadel (Figure 2). While the formation of sinkholes in limestone (as observed in Ubar) is a gradual process, climate change, drought, and excessive use of underground water can contribute to ground collapse and sinkhole formation (Clapp 1999).

Paleoclimatological studies from various parts of the world reveal that approximately between 3200 to 2900 years ago a severe drought affected the Northern Hemisphere, known as the 3.2k event. West Asia was not exempt from this event, experiencing drought, reduced crop yields, and famine (Kaniewski et al. 2019). These droughts and climate changes caused significant demographic shifts in the West Asia (Palmisano et al. 2021). Preliminary research on the archaeology of the currently uninhabited empty neighborhood area indicates that it was inhabited about 6300 years ago (Al Kindi et al. 2021), with habitation continuing until about 3000 years ago (Casana, Herrmann, and Qandil 2009). Accepting the archaeological and paleoclimatological findings regarding this area, it is highly likely that the 3.2 thousand-year event influenced the fate of the Aad tribe. What is mentioned in the Qur'an about the blowing of wind, sandstorms, and the burial of the people of Aad aligns with the characteristics of the area found in the Rub' al-Khali.

Saba'

The fate of the people of Saba' is an interesting case, where their gardens turned into barren lands after they turned away from God's orders. Various interpretations of Qur'anic verses, combined with historical and geographical studies, lead many Qur'anic researchers to believe that the people of Saba' resided in the present-day Marib in Yemen (Ghorban and Tawakkul 2022). Marib, situated along the trade route of frankincense and myrrh, was pivotal in the trade network between southern Arabia, Mesopotamia, and the eastern Mediterranean from 2000 BC to approximately 1000 AD (Wilkinson 2003). Beyond trade, the Saba' people practiced agriculture in this region for about 5000 years, constructing diversion dams along seasonal rivers to control floods

(Wilkinson 2003). This sophisticated irrigation system reached its zenith with the construction of the Marib Dam around 2400 to 2500 years ago (Figure 2). Archaeological findings indicate that the main Marib Dam's height is approximately 16 to 20 meters, with a length ranging from 600 to 680 meters (Figure 2) that eventually collapsed around 1500 years ago (Wilkinson 2003). The collapse of the Marib Dam corresponds with a period of climatic changes known as the Late Antiquity Little Ice Age (LALIA) in geological literature.

The LALIA, spanning from approximately 1500 to 1350 year ago, is marked by a decline in temperatures across the northern hemisphere (Büntgen et al. 2016). The primary cause of this cooling phenomenon during this period is attributed to reduced solar activity, accentuated by a series of volcanic eruptions occurring between 1484 and 1473 years ago (Büntgen et al. 2016). Various studies conducted worldwide reveal that this climatic era triggered significant environmental, social, and political transformations globally (Gunn 2000). The repercussions and social impacts of this cold spell include its influence on the Mayan civilization in Central America (Büntgen et al. 2022), the occurrence of "years without summer" in Central Asia (Büntgen et al. 2016), massive Turk migration to the western and southern regions, droughts affecting West and East Asia with associated political events (Büntgen et al. 2016), and severe cold in Europe accompanied by a plague epidemic and the inception of the Justinian movement (Gunn 2000). Notably, this period aligns with the Mesopotamian region experiencing drought and the desiccation of the Tigris and Euphrates rivers during the rule of the Sassanian kingdom (Beni et al. 2024). The Arabian Peninsula faced altered seasons, rainfall patterns, and severe drought, contributing to the downfall of the Himyar rulers in southern Arabia (Fleitmann et al. 2022).

The emergence of Islam unfolded amid these challenging conditions and according to Fleitmann et al. (2022), Islam emerged as an adaptive response to the climatic and tense global circumstances of that time.

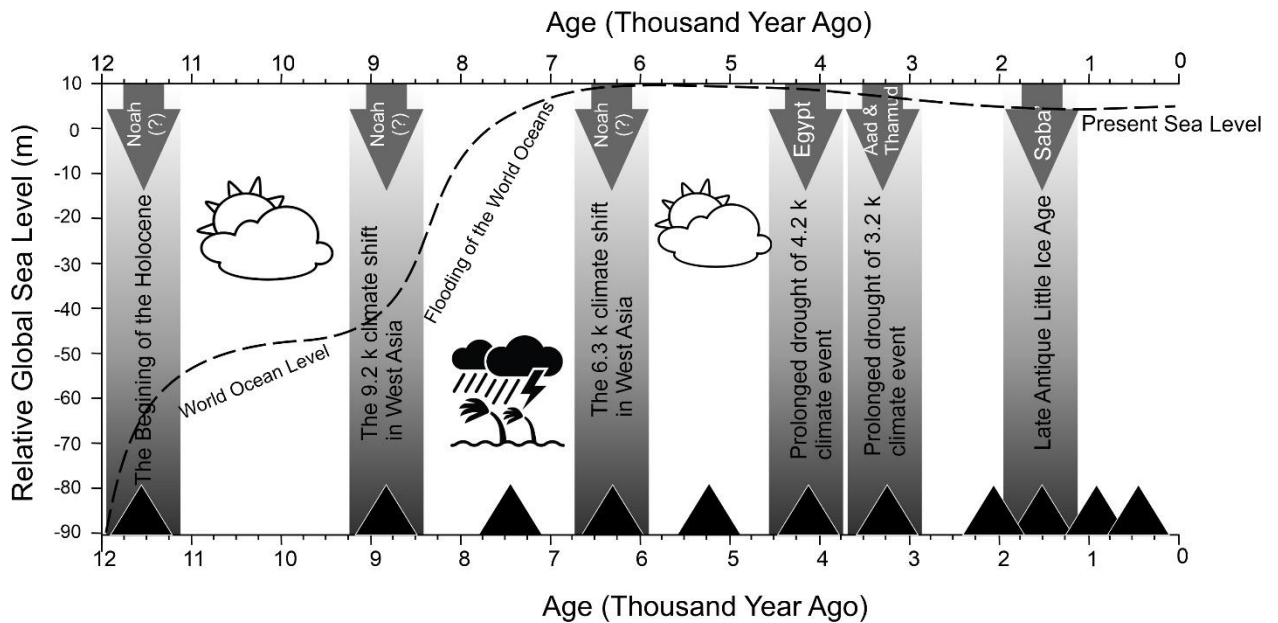


Figure 3. An estimation of the time of Qur'anic stories on different people (top of the graph), the main climatic and environmental events (black triangle at the base of the figure) and correlation of them (the gray shaded bands). The horizontal axis shows the time based on thousand years ago. The vertical axis shows the sea level based on meter.

Discussion

Certain extraordinary natural events usually stay in human memories for a long time. The fascination with stories of natural disasters goes beyond their immediate effects, like strong winds, floods, and earthquakes. These events raise deep concerns about life, death, disruption, and the collapse of social ties (W. Ryan and Pitman 1998). Natural disasters can destroy lives and communities, but they also challenge our values and beliefs. Societies can usually rebuild after events like floods and earthquakes, although in some cases the events could eliminate some communities. However, in case of climate change the response is different. Climate change brings new, and lasting conditions that force us to change our way of life.

Throughout history, people have dealt with climate change in three main ways: by creating new technologies, changing their lifestyles, and adapting to new conditions. For instance, in many West Asian countries, people invented aqueducts and wind traps and learned to live with less, adapting to the hot, dry climate (Shaikh 2018). Islamic culture and lifestyle also helped Muslims during the LALIA climate change to adapt and thrive in new conditions (Fleitmann et al. 2022). The second strategy in facing the effects of climate change is migration. Major human migrations, for example from Central Asia to the West (Yang et al.

2019) or the migration of Qahtani Arabs from the southern region of the Empty Quarter to southern Iran (Bhacker 2009), can be considered as examples of this strategy. Migrations have often been associated with the transmission of diseases and its spread, cultural clashes, conflicts of interest and lack of resources, resulting in war and famine (Stenseth et al. 2006). But the third solution is insisting on staying, continuing the previous lifestyle, and insisting on the old values, which have no destiny other than destruction and decay. In many cases given as examples in the Qur'an, the tormented tribes insisted on repeating the lifestyles and wrong beliefs of their ancestors (Surat Ash Shu'ara'a 26:74), they insisted on their previous wrong customs and culture (Surat Noah 71:7), to the ability Their technologies and technologies were against the divine power that manifests itself in the violence of nature (Surat Ash Shu'ara'a 26:129), and they ignored the signs and divine signs of changes in natural conditions (Surat Al Ahqaf 46:26). This ignoring did not mean not seeing but prioritizing other matters over what was happening. They continued to fight in vain with each other (Surat Yasin 36:49), praised the hollow values of their social classes (Surat Saba' 34:19), insisted on class separation (Al Qasas 28:4), and instead of improving the world, they destroyed it (Surat Ash Shu'ara'a 26:152). They were insisting on extravagance instead of contentment (Surat Az-Zukhruf 43:24), and believed in gods who never did anything for them (Surat Ash Shu'ara'a 26:71).

Scientists are now pointing to the unusual fires in forests around the world, including the Arctic Circle, along with heavy rains, floods, freezing temperatures, repeated records on high temperatures, droughts, and other extreme events as indicators of significant changes happening globally. Global warming has caused glaciers to melt at unprecedented rates, leading to sea level rise that could increase by several meters by the century's end, similar to the rapid changes experienced during the early Holocene period (Fletcher 2009). Temperature records are consistently being shattered in different cities, while many countries face unprecedented water shortages, and lakes and wetlands are progressively drying up (Cook et al 2014). Floods are occurring worldwide, and the destruction of infrastructures and countless other signs are indicative of an impending age and era that may lead to the destruction of human life (Kundzewicz et al 2014).

Scientists have long been warning about climate change, and what we witness today is merely the onset of these changes, with potentially more dire events ahead (Andersen and Jacobsen 2020). Predictions suggest that many areas such as the Persian Gulf region will be dominated by such intense heat that humans and other living beings may find it unbearable (Pal and Eltahir 2016). Mass deaths could be a looming reality. Tropical storms are anticipated to intensify in northern Indian Ocean where populated cities like Dubai and its

skyscrapers are ill-prepared for such conditions (Lin and Emanuel 2016). Vegetation retracts with changing rainfall and heat regimes and many lakes in the world even the largest, the Caspian Sea, leading to drying (Koriche, Singarayer, and Cloke 2021). Substantial reduction in crops due to climate change could result in widespread famine and conflict (Anderson, Bayer and Edwards 2020). Other regions of the world, such as the Maldives and the Netherlands, face existential risks (Hirsch 2015).

Despite scientists' warnings and the understanding that human activities cause climate change, there's a need for practical steps to reduce, moderate, and prevent greenhouse gas emissions and adapt to the impacts of the climate change. However, the self-interest of both supporters and opponents of climate change prevails, hindering meaningful action (R. Pielke Jr and Ritchie 2021). Humanity, rather than working earnestly to save itself from impending disasters, persistently insists on continuing its misguided path.

Given the myriad challenges in responding to climate change, a concept is gradually emerging among scientists and climate policymakers: the idea that religion can and should play a prominent role in shaping responses to climate change (Hulme 2017). It's evident that a simplistic understanding of science is insufficient to discuss or address climate and its changes. Involvement of religion in policies to deal with and adapt to climate change is not only necessary but also unavoidable (Hulme 2017). The crucial point is how religious beliefs, institutions, and God-believing rituals and behaviors interact with human efforts to face the consequences of climate change. What impact do they have on these programs? How should religious scholars and believers get involved in this issue? As demonstrated by Fleitman et al (2022), one of the main reasons for the success of Islam's development was the commands of this divine religion in facing the climatic conditions of the late ancient times, making Muslims successful while those who didn't understand how to face changing environmental conditions, like the Sasanians, submitted. Qur'an has the potential to offer a path of salvation to mankind by adhering to its original commands, free from the usual prejudices and biases of followers of different religions. Achieving this requires religious scholars to work towards clarifying this challenging path.

Conclusion

The Qur'an mentions many times that people were punished through weather events, which led to the ruin of those who ignored their prophets' warnings and kept up old habits. When we look closely at the history, where these people lived, and the nature of these punishments, and compare them with climate events that scientists have identified from the past, we see a connection between these events and changes in the climate from long ago. The main point

is that during times of climate change, we must change our way of living to adapt successfully. Just like the punished groups in the past who stuck to their old ways, didn't believe in the power shown in nature, and continued to worship idols or live wastefully, we today face a similar situation. Without prophets to guide us, scientists now use their tools and knowledge to warn us about the serious risks of the climate changes happening now.

Considering the many stories in the Qur'an about the outcomes for those who turned away from divine power and the Qur'an's logical support for understanding climate change, Qur'an and its teachings could provide unique guidance for how we respond to the climate issues we face today. It highlights the need to think again about what we value, to adopt ways of living that can last, and to see

Author Contributions

Abdolmajid Naderi Beni: Conceptualization, Methodology, Writing - review & editing, Supervision, Project administration.

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Conflict of Interest

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