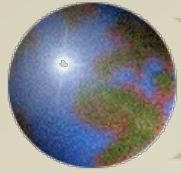


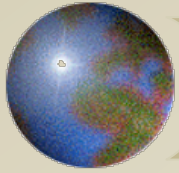
# Land, Climate, Regions, Southern Levant

- ✚ Maps
- ✚ Climate and
- ✚ Geography of the region
- ✚ From Friday - Cataclysmic Evolution

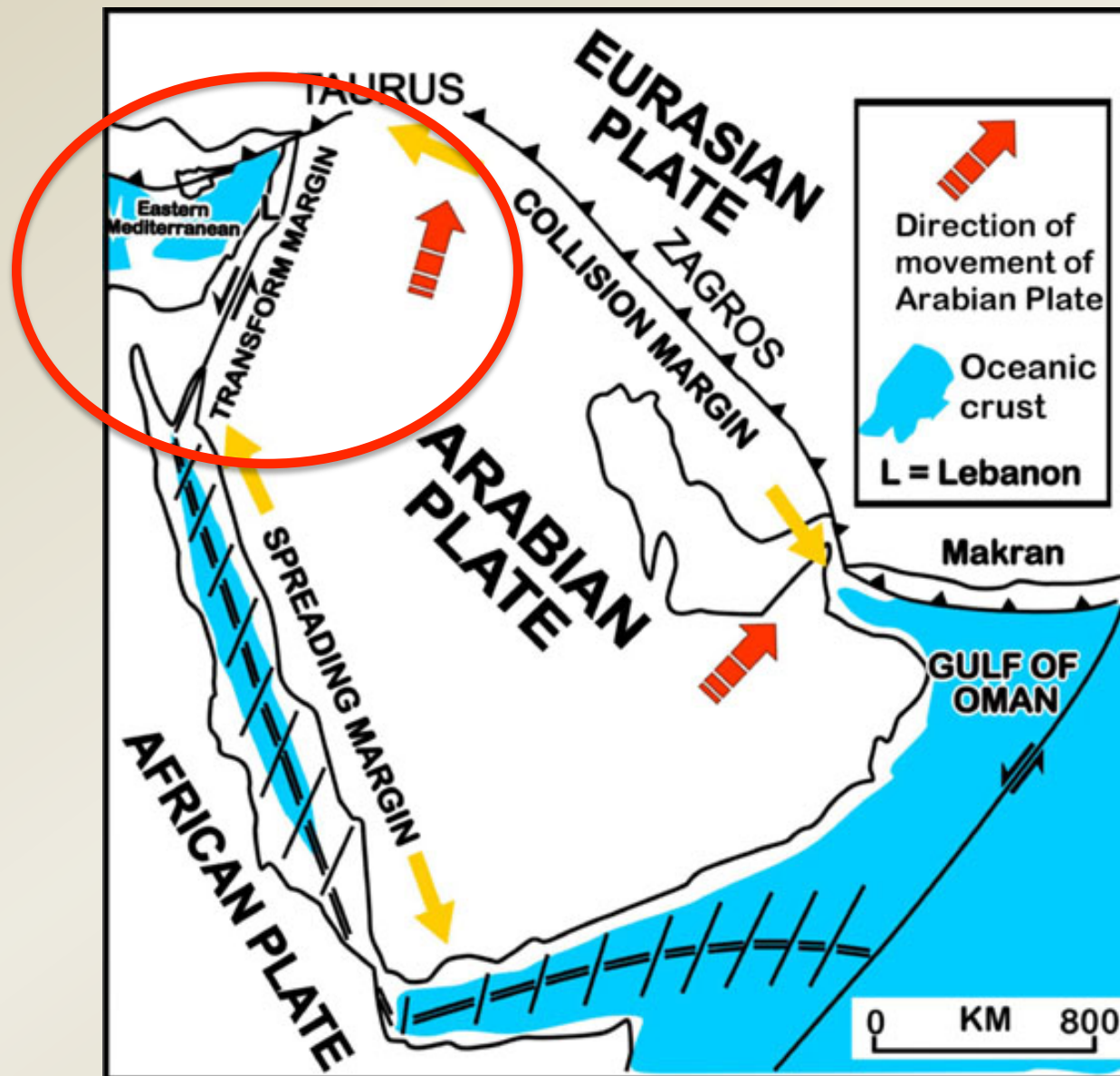


# Land, Climate, Regions, Southern Levant

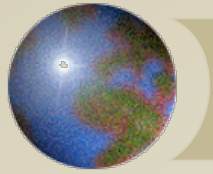




# Land, Climate, Regions, Southern Levant







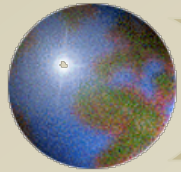
# Land, Climate, Regions, Southern Levant

## Geographic feature: the Wadi Arava --- Jordan “Graben”

**Plate tectonics** – continental plates which move, either

- ❊ 1) **spreading** (separating)
  - ❊ 2) **laterally shifting**, or
  - ❊ 3) **subduction** (one plate moves under the other)
- ❊ all 3 take place along the Jordan-Graben Rift system

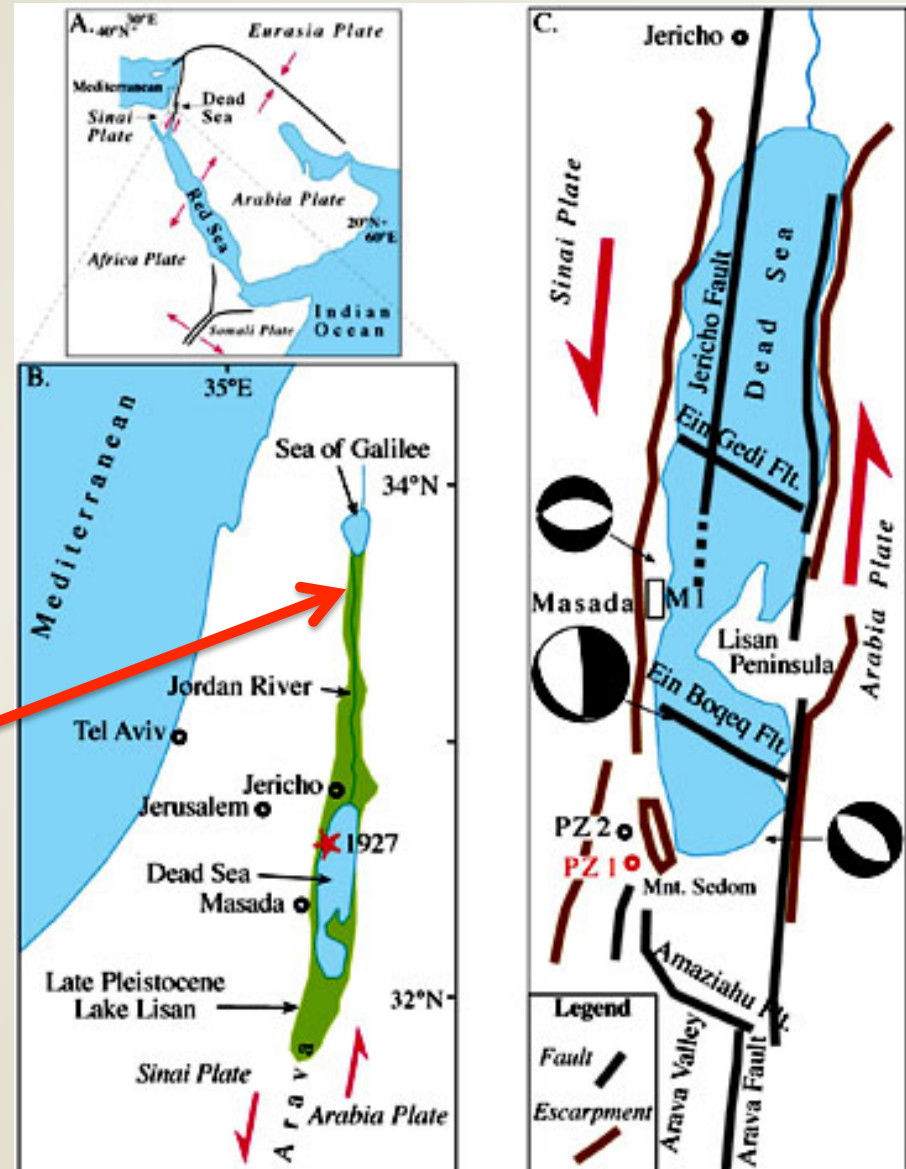


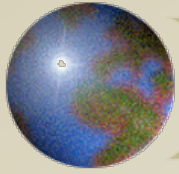


# Land, Climate, Regions, Southern Levant

## Tectonic activity

- Remnants of the shore of the former lake
- Due to later tectonic activities in the area, archaeological layers at early sites (Ubeidiya) now lie at an almost vertical angle

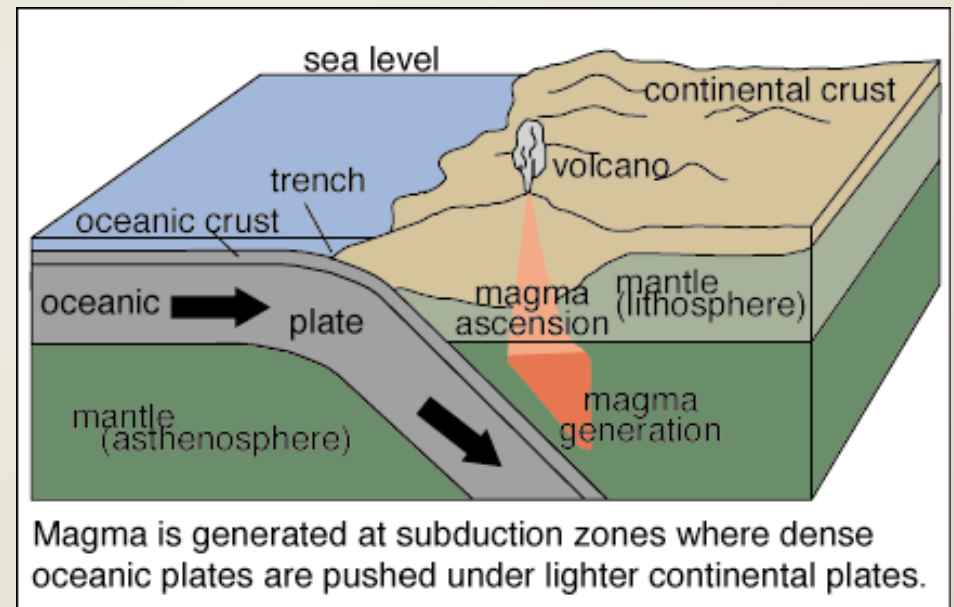


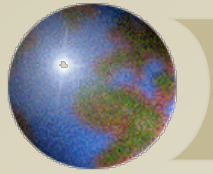


# Land, Climate, Regions, Southern Levant

## Subduction

- ❖ Process in which one plate is pushed down below another plate
- ❖ Faulting occurs
- ❖ Earthquakes result
- ❖ Long narrow deep trench produced
- ❖ Slab forced back into Earth often melts when edges reach a depth which is hot enough



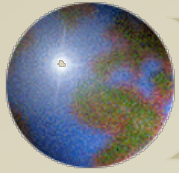


# Land, Climate, Regions, Southern Levant

## Major hominid sites and geographical features in East Africa

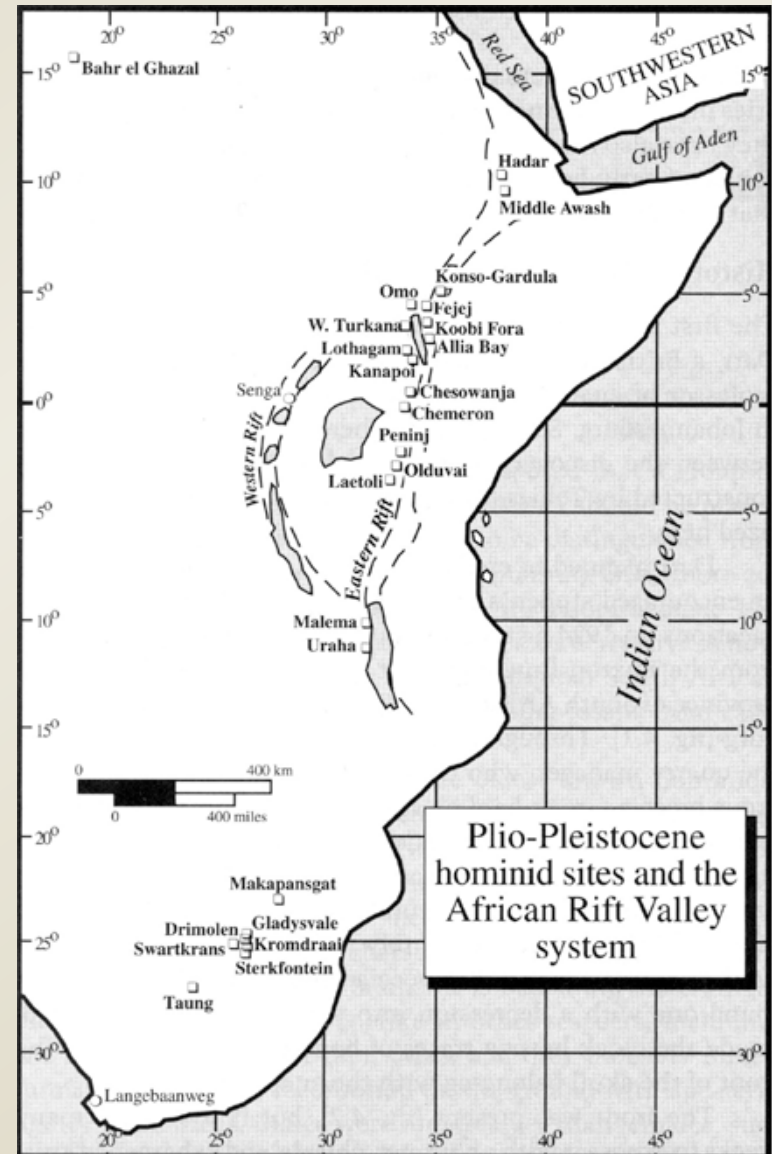




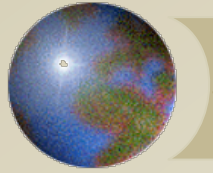


# Land, Climate, Regions, Southern Levant

- Why is the Olduvai Gorge so important to early hominids studies?
- Pleistocene & recent faulting created gorge
- Long stratigraphic sections necessary to assess relationships



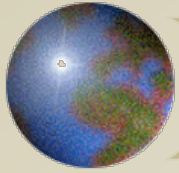




## Land, Climate, Regions, Southern Levant

### Nature Moment

- ✚ Migratory path for birds from Africa to Eurasia
- ✚ Ancient diversity of species – land route from Africa to Asia, for many species (including hominids!)
- ✚ Despite decimation of species in historical and modern times, still diverse



# Land, Climate, Regions, Southern Levant

Pied Kingfisher



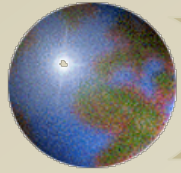
Blue-cheeked bee eater

Lesser Kestrel



Masked shrike



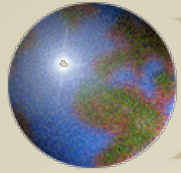


## Land, Climate, Regions, Southern Levant

- 15,000 acres drained for arable land
- Led to many species extinctions



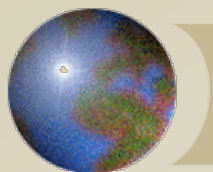




# Land, Climate, Regions, Southern Levant

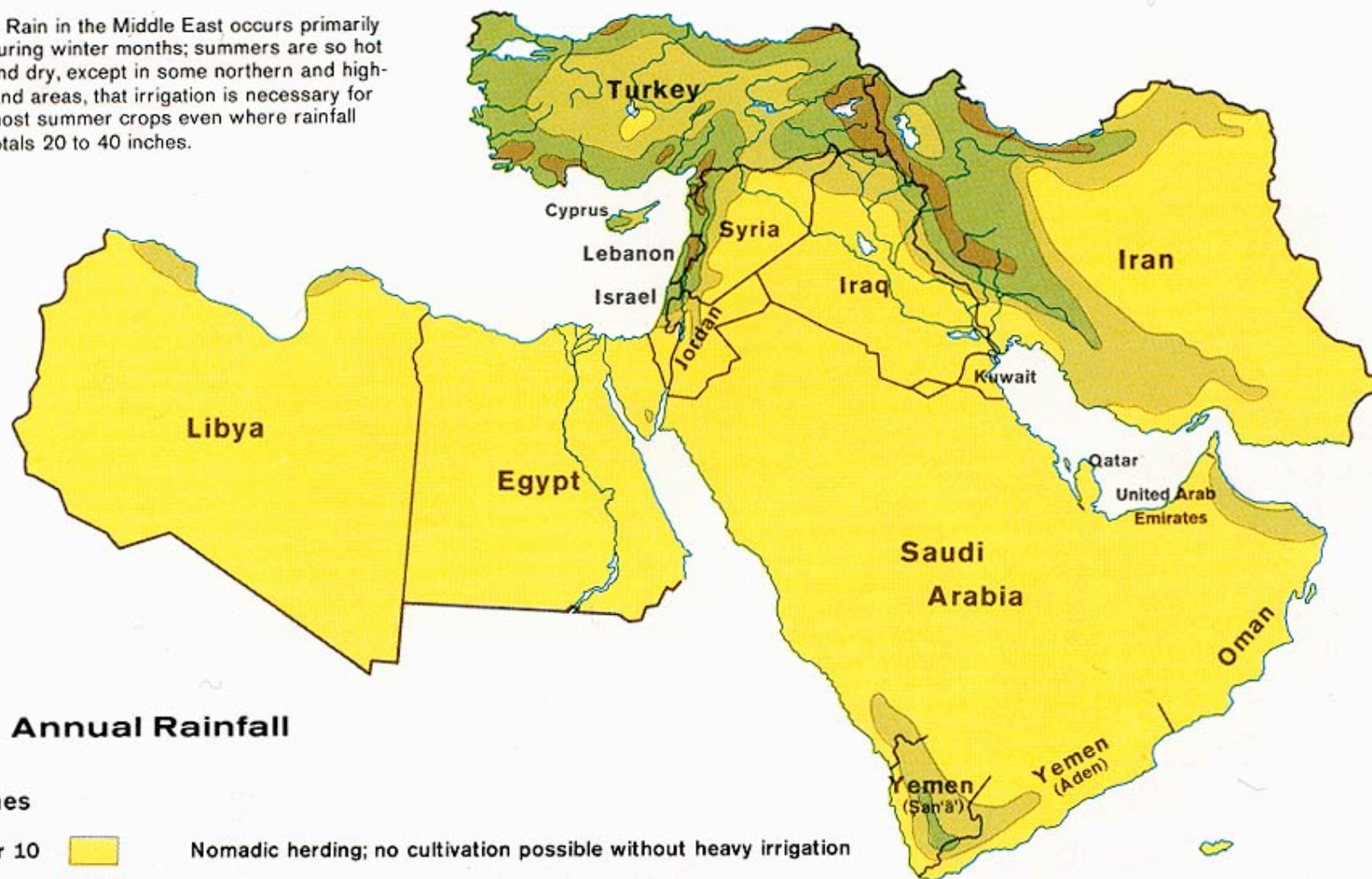
The Hula Basin today





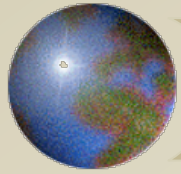
# Land, Climate, Regions, Southern Levant

Rain in the Middle East occurs primarily during winter months; summers are so hot and dry, except in some northern and high-land areas, that irrigation is necessary for most summer crops even where rainfall totals 20 to 40 inches.



The mean annual rainfall for Washington, D.C. is 40 inches.

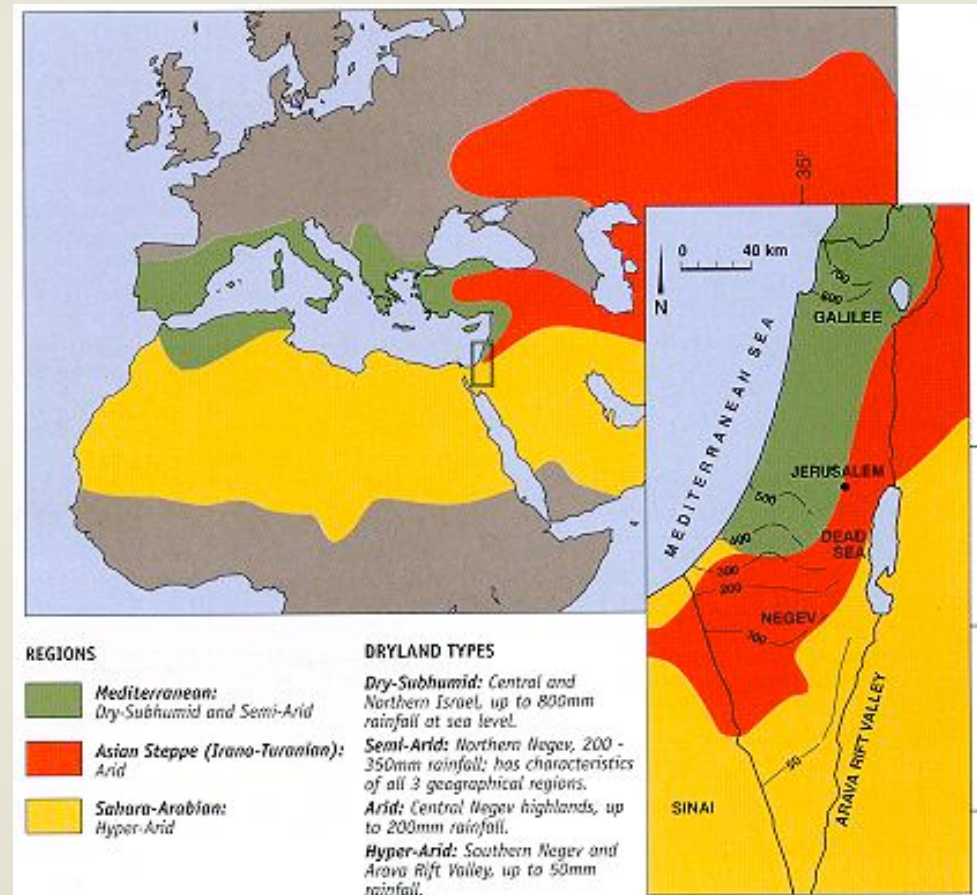




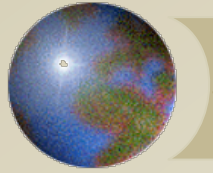
# Land, Climate, Regions, Southern Levant

## *Major Climatic Zones*

- ✚ MEDITERRANEAN HUMID ZONE
- ✚ IRANO-TURANIAN SEMI-ARID ZONE
- ✚ SAHARO-ARABIAN ARID DESERT ZONE
- ✚ SUDANIAN TROPICAL DESERT



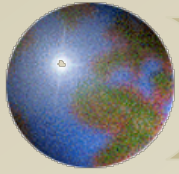




# Land, Climate, Regions, Southern Levant

## Four Climatic Zones

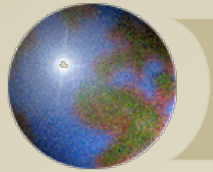
- ✚ **MEDITERRANEAN HUMID ZONE:** found in north, avg annual rainfall fluctuates between 1000-350 mm. Dry farming possible.
- ✚ **IRANO-TURANIAN SEMI-ARID ZONE:** as little as 30 km wide, wedged between the Med. Zone and arid desert to the south. Avg annual rainfall 150-350 mm. Follows up along the Med. Zone to Sea of Galilee, southward to the margins of the Rift Valley and the Transjordanian plateau, northward to Syria and the Fertile Crescent. Sporadic farming, intensive herding. Extends to Asian steppes of Syrian Desert, Iran, Anatolia & Gobi Desert.
- ✚ **SAHARO-ARABIAN ARID DESERT ZONE:** Mean annual rainfall, ca. 25-150 mm. Sahara, Sinai, Arabia. Very little farming practiced, limited pastoralism.
- ✚ **SUDANIAN TROPICAL DESERT:** Very limited enclaves of this vegetation region, associated with oases such as Jericho.



## Land, Climate, Regions, Southern Levant

- Between mountains, significant agricultural land (olives, figs, grapes)
- Deforested
- Mtns prevent moisture to east



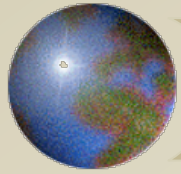


# Land, Climate, Regions, Southern Levant

*The Geological Time Scale and Major Evolutionary Events*

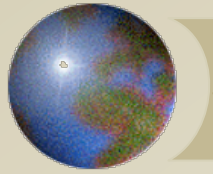
Era	Period	Epoch	Million years ago	
<b>Cenozoic</b>	Quaternary	Holocene	0.01	
		Pleistocene	1.75	
	Tertiary	Pliocene	5.3	First hominins
		Miocene	22	
		Oligocene	35	First ape-like forms
		Eocene	55	
		Paleocene	65	First primates
<b>Mesozoic</b>	Cretaceous		146	
	Jurassic		208	First mammals
	Triassic		245	
<b>Paleozoic</b>	Permian		290	
	Carboniferous		354	
	Devonian		417	
	Silurian		443	
	Ordovician		490	
	Cambrian		543	First vertebrates
<b>Precambrian</b>	Proterozoic		1000	
	Archeozoic		3000	
	Azoic		4600	





# Land, Climate, Regions, Southern Levant

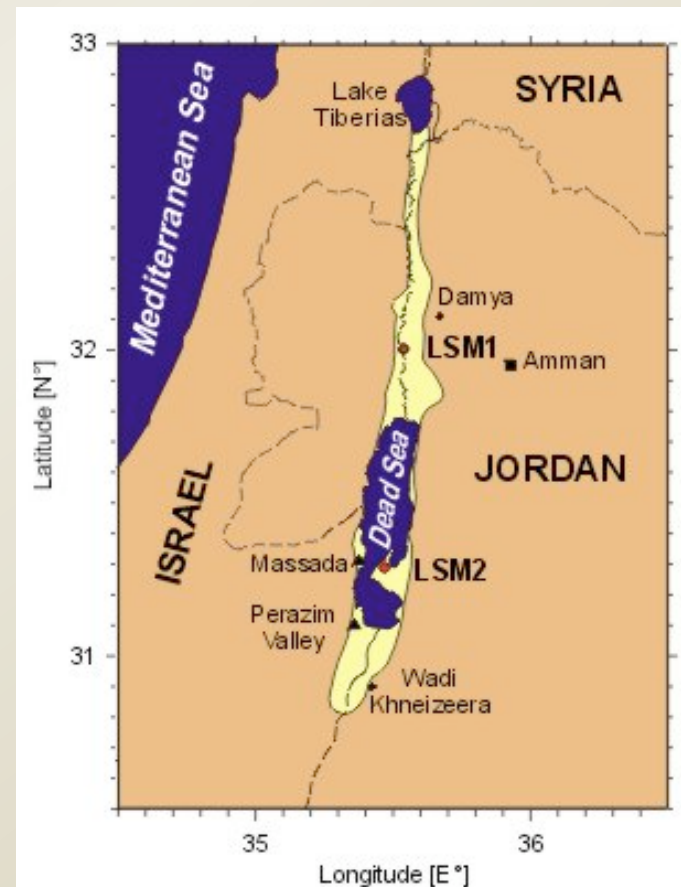


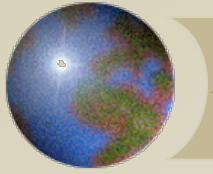


# Land, Climate, Regions, Southern Levant

## Paleogeography

- During glacial periods, coastline extended to west
- Increased rainfall, cooler temps, created Lisan Lake, extending from Lake Tiberias to 80 km. south of the Dead Sea
  - Lisan Lake, about 70,000 BP, maintained at its highest level from about 50,000 to 20,000 BP
- Other ancient lakes also existed, where MP sites are found





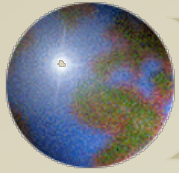
## Land, Climate, Regions, Southern Levant

### Dead Sea

- ✚ Lowest dry land on Earth
- ✚ Block of crust sank, form valley known as a graben
- ✚ As Med. receded & evaporated, formed the Dead Sea







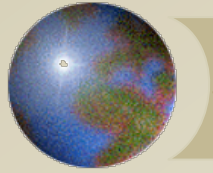
## Land, Climate, Regions, Southern Levant

- 190 m below sea level
- Lower Paleolithic artifacts w/ extinct mammal species similar to Olduvai (Bed II)
  - Leopard, bear, rhino, giraffe, hippo, warthog
- Tilted layers, animal bones & stone artifacts
- ca. 1.4 mya
- Many handaxes
- Only one hominid tooth!

## Ubeidiya

Most widely accepted early date in Asia for *H. erectus*





## Land, Climate, Regions, Southern Levant

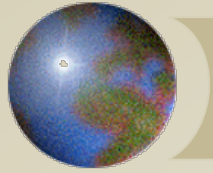
### Middle Paleolithic (Mousterian)

- ca. 250,000 - 45,000 BP

- Covers both glacial and interglacial periods

- Pollen = well forested north and maquis in the south





## Land, Climate, Regions, Southern Levant

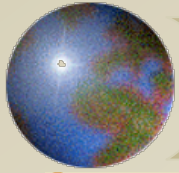
### Upper Paleolithic

- ✚ 45,000 – 20,000 BP
- ✚ Renewed streams
- ✚ Increased tree pollen

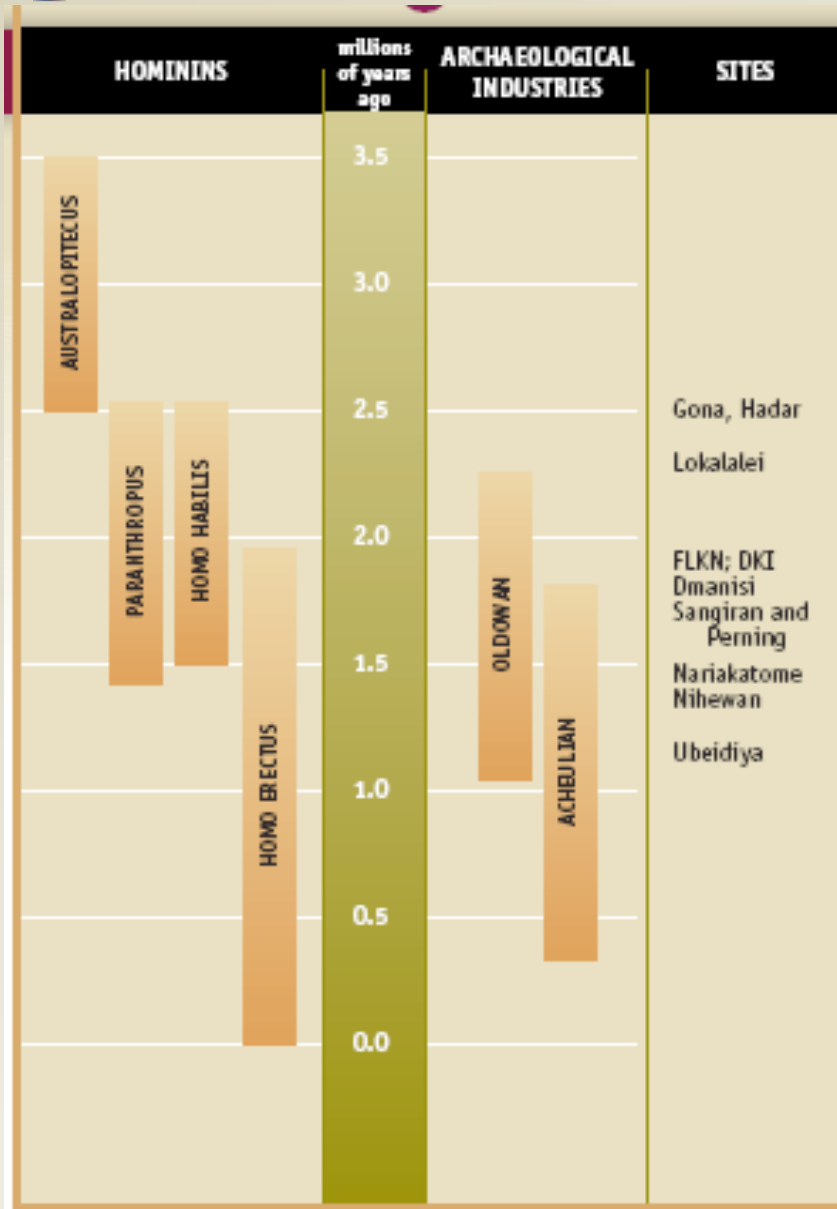
### Epipaleolithic

- ✚ 20,000 – 10,300 BP
- ✚ End of the Epipal = intense dry spell
- ✚ Younger Dryas

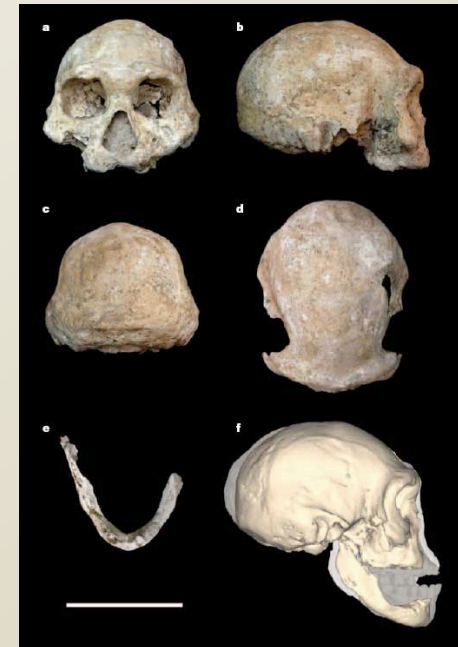


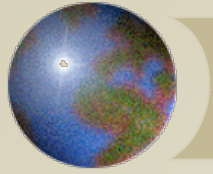


# Land, Climate, Regions, Southern Levant



- ✪ Australopithecus
- ✪ Homo Erectus
- ✪ Homo Habilis
- ✪ Oldowan
- ✪ Acheulian





## Land, Climate, Regions, Southern Levant

### The Fossil Record

The earliest hominins are known from fragmentary remains

- *Sahelanthropus tchadensis* — fossils found in Chad, dates to 7 million years ago (m.y.a.)

- *Ardipithecus ramidus* — fossils found in Ethiopia, dates to 4.5 m.y.a.

- ARDI!

