

3. Kronostratigrafi (Zamanstratigrafi)



Kronostratigrafi
Kayaçların **göreceli yaş ilişkilerini ele alır**

BİRİMİ

Zamanın belirli bir aralığında oluşan
bir kayaç kütesidir

Her **kronostratigrafik** birim, **jeokronolojik** birime eşdeğerdir

Ör, kayaçlar
Pleyistosen Serisi'ni oluştururken,

kayaçların oluşumunu denetleyen olaylar
Pleyistosen devresindedir

Kronostratigrafi	Jeokronoloji	Açıklamalar
Eonotem (<u>Eonothem</u>)	<u>Eon</u>	Toplam 4 tanedir, yarım milyar yıl veya daha fazla sürer
Eratem (<u>Erathem</u>)	Zaman (<u>Era</u>)	Toplam 10 tanedir, birkaç yüz milyon yıl sürer
Sistem (<u>System</u>)	Devir (<u>Period</u>)	
Seri (<u>Series</u>)	Devre (<u>Epoch</u>)	On milyonlarca yıl sürer
Kat (<u>Stage</u>)	Çağ (<u>Age</u>)	Milyonlarca yıl sürer
Kronozon (<u>Chronozone</u>)	Kron (<u>Chron</u>)	

Tablo 6

Kronostratigrafi ve jeokronoloji birimlerinin karşılaştırılması

Neojen-Kuvaterner için farklı öneriler

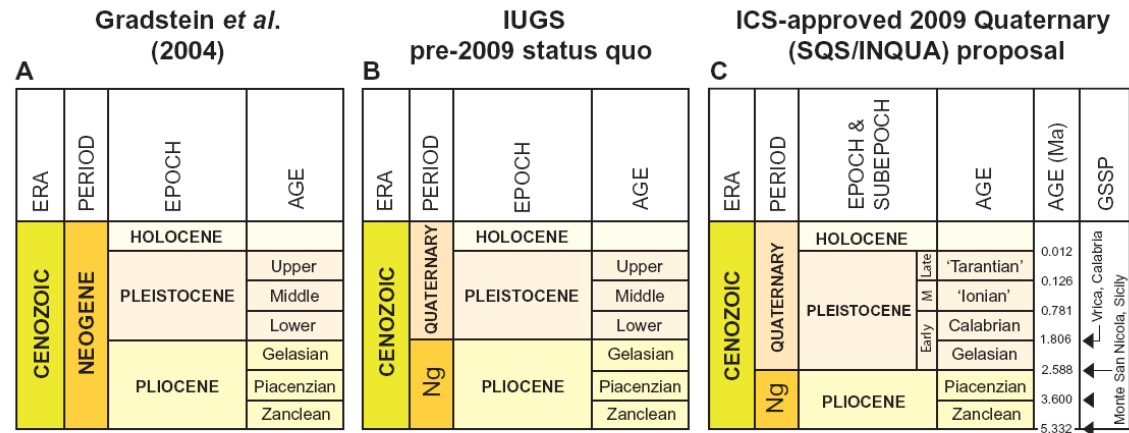


Figure 1: Comparison of late Cenozoic time scales. A: the Gradstein *et al.* (2004) time scale which, although influential, was sanctioned by neither ICS nor IUGS. B: the most current previous IUGS-sanctioned time scale showing the Quaternary in place (Remane, 2000). C: the current (2009) scheme proposed by SQS and INQUA and newly approved by ICS, in which the Quaternary and Pleistocene are co-terminus with the base of the Gelasian Stage at 2.6 Ma (modified from Head *et al.*, 2008a). Stage names and boundary ages are from the ICS website in 2008, with the provisional Ionian Stage following Cita *et al.* (2006, 2008) and the provisional Tarantian Stage following Cita (2008, and references therein). The subdivision of the Pleistocene is based on Head *et al.* (2008a). Currently defined GSSPs are indicated by arrows. Ng = Neogene. The illustrations are not scaled to geological time.

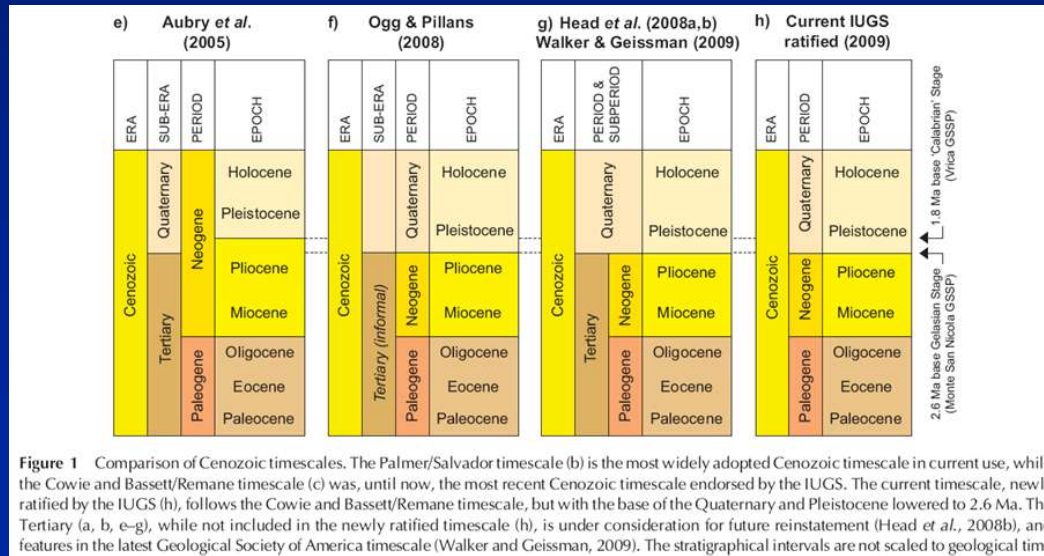


Figure 1 Comparison of Cenozoic timescales. The Palmer/Salvador timescale (b) is the most widely adopted Cenozoic timescale in current use, while the Cowie and Bassett/Remane timescale (c) was, until now, the most recent Cenozoic timescale endorsed by the IUGS. The current timescale, newly ratified by the IUGS (h), follows the Cowie and Bassett/Remane timescale, but with the base of the Quaternary and Pleistocene lowered to 2.6 Ma. The Tertiary (a, b, e-g), while not included in the newly ratified timescale (h), is under consideration for future reinstatement (Head *et al.*, 2008b), and features in the latest Geological Society of America timescale (Walker and Geissman, 2009). The stratigraphical intervals are not scaled to geological time

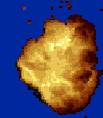
En son yenilenme **GTS2009**'dur

Current IUGS ratified (2009)						
Era	Period	Epoch & Subepoch	Age	Age (Ma)	GSSP	
Cenozoic	Quaternary	Holocene		0.012	▲	
		Pleistocene	'L'	'Tarantian'	0.126	
			'M'	'Ionian'	0.781	
			'Early'	'Calabrian'	1.806	▲
				Gelasian	2.588	▲
				Piacenzian	3.600	▲
	Neogene	Pliocene	Zanclean	5.332	▲	
			Messinian	7.246	▲	
		Miocene	Tortonian	11.608	▲	
			Serravalian	13.65	▲	
			Langhian	15.97	▲	
			Burdigalian	20.43	▲	
			Aquitanian	23.03	▲	
						▲
						▲
						▲

Vrica, Calabria, Italy
 Monte San Nicola, Sicily, Italy

Kuvaterner'in kronostratigrafisi
tefralar, manyetik kutup düzeyleri ve tektitleri
kapsar

Tektitler yüksek hızlı ve büyük göktaşı
çarpmaları nedeniyle,
erimiş kabuksal kayalardan oluşan
camsı malzemedir



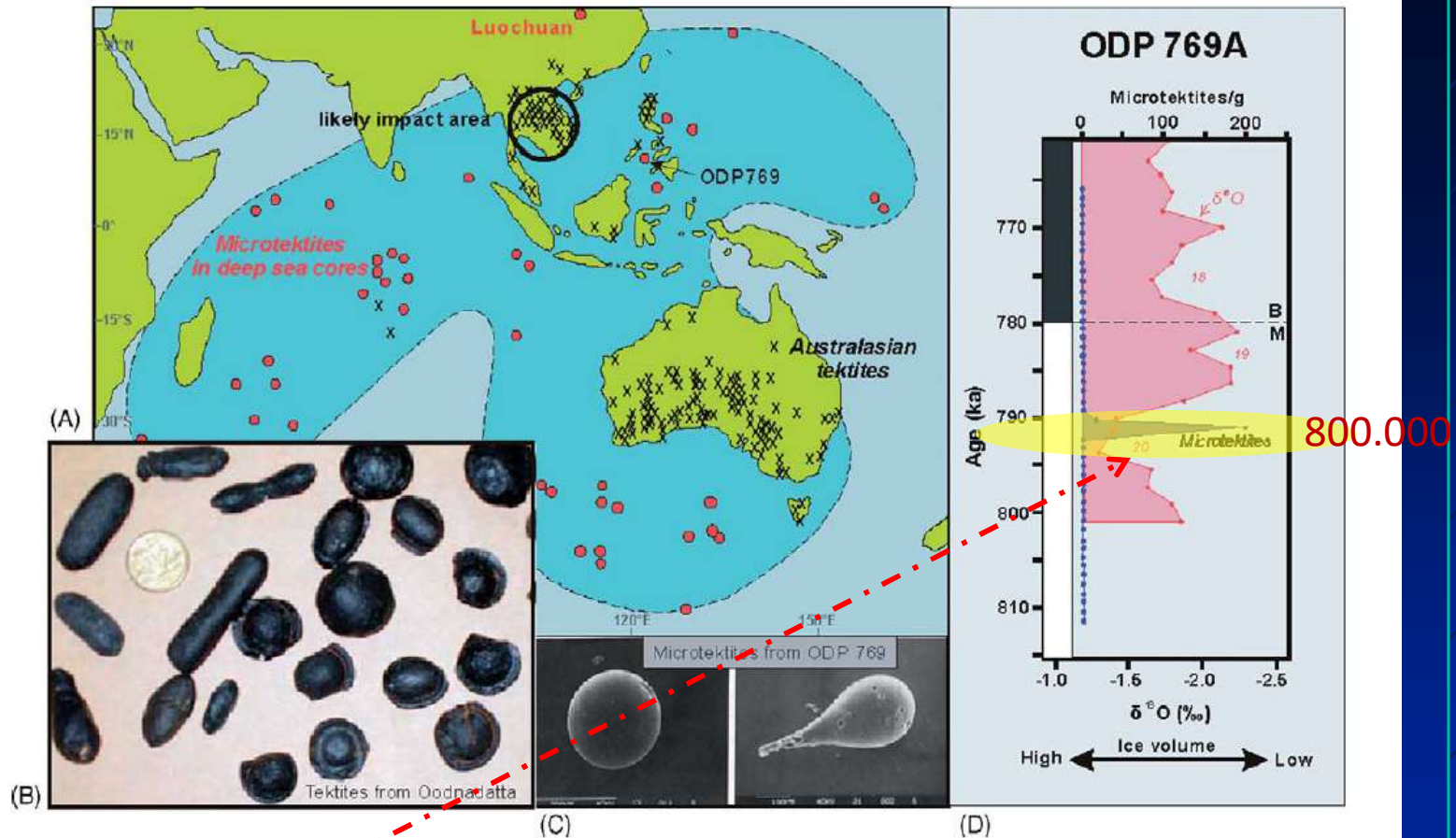
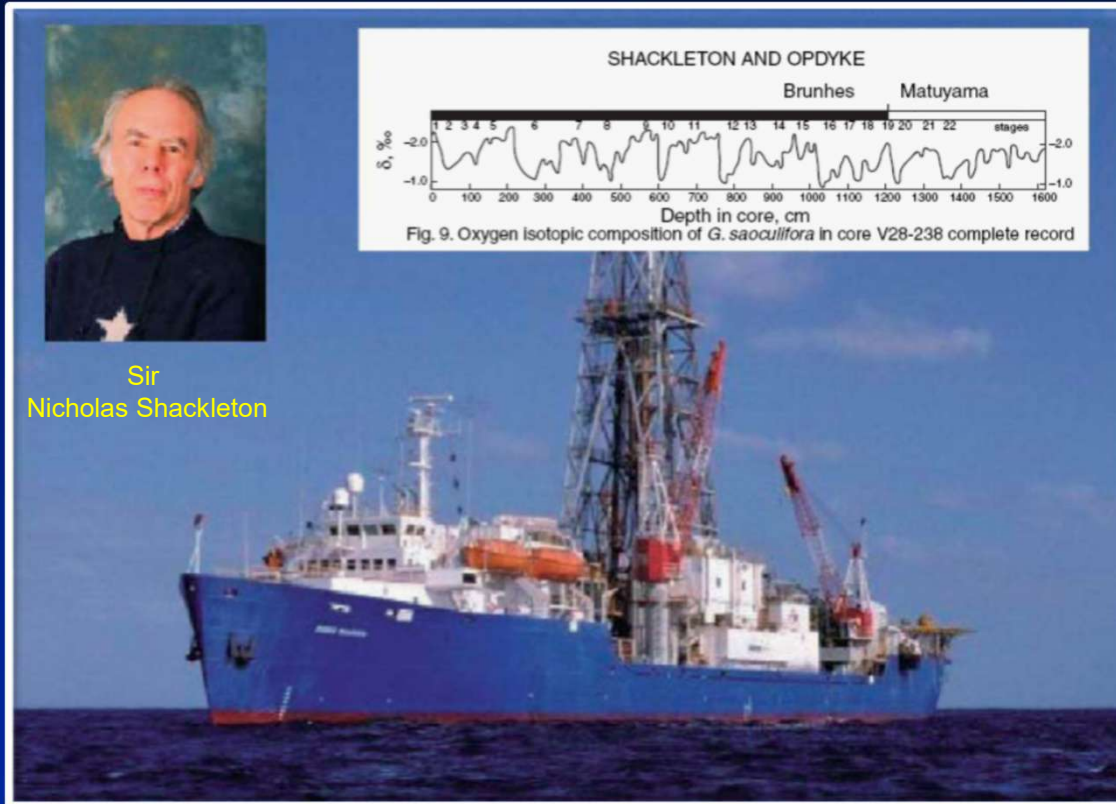


Figure 10 (A) The Australasian tektite field. (B) Tektites from the Oodnadatta area, central Australia. (C) Microtektites in deep-sea cores (Schneider *et al.*, 1992). (D) Chronology of microtektites in ODP core 769A (Schneider *et al.*, 1992). (A) After Prasad *et al.* (2003).

Yaklaşık **800.000 yıl önce** büyük bir Dünya dışı çarpma etkisi Güneydoğu Asya'da meydana gelmiştir. Avustralya ve çevresindeki okyanuslar da dahil olmak üzere geniş bir alan üzerinde tektitler yer alır. Bunlar Avustralitler ya da Avustralasya tektitleri olarak anılmaktadır.

Derin deniz karotlarının **astronomik kronolojisi** oldukça gelişmiştir
İzotop yaşları ve **manyetik terslenmelere dayalı olarak**
iyi kurulmuştur



Analysis of deep-sea sediment cores, such as core V28-238 (Shackleton and Opdyke, 1973) revolutionized Quaternary stratigraphy in the 1960s and 1970s. Sir Nicholas Shackleton (1937–2006) was a leader in this research. Photo of Joides Resolution courtesy of International Ocean Drilling Program and TAMU.

Yeni Zelanda Wanganui Havzası sığ denizel çökellerinin astronomik kalibrasyonu Kuvaterner için tamamlanmıştır

(Naish vd. 1998; Pillans vd. 2005)

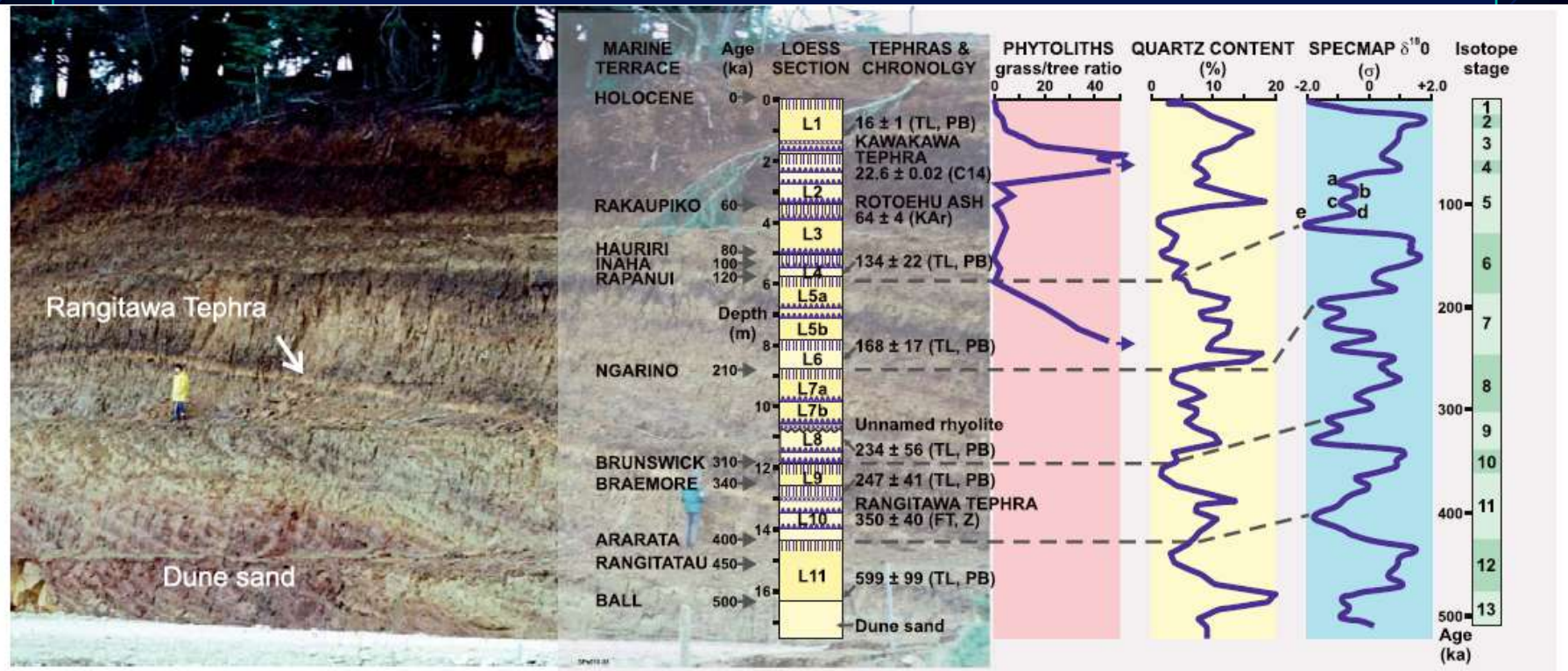
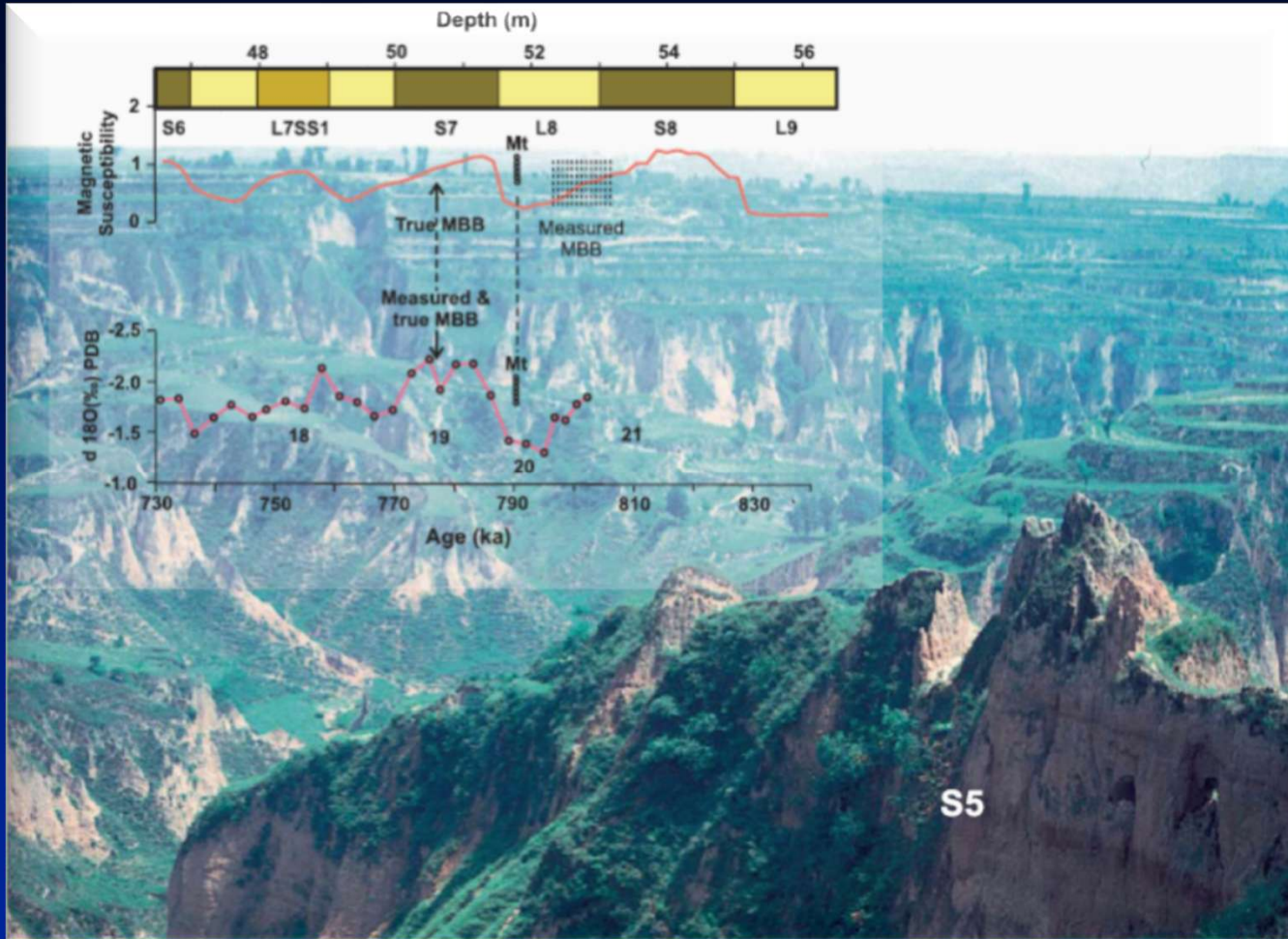
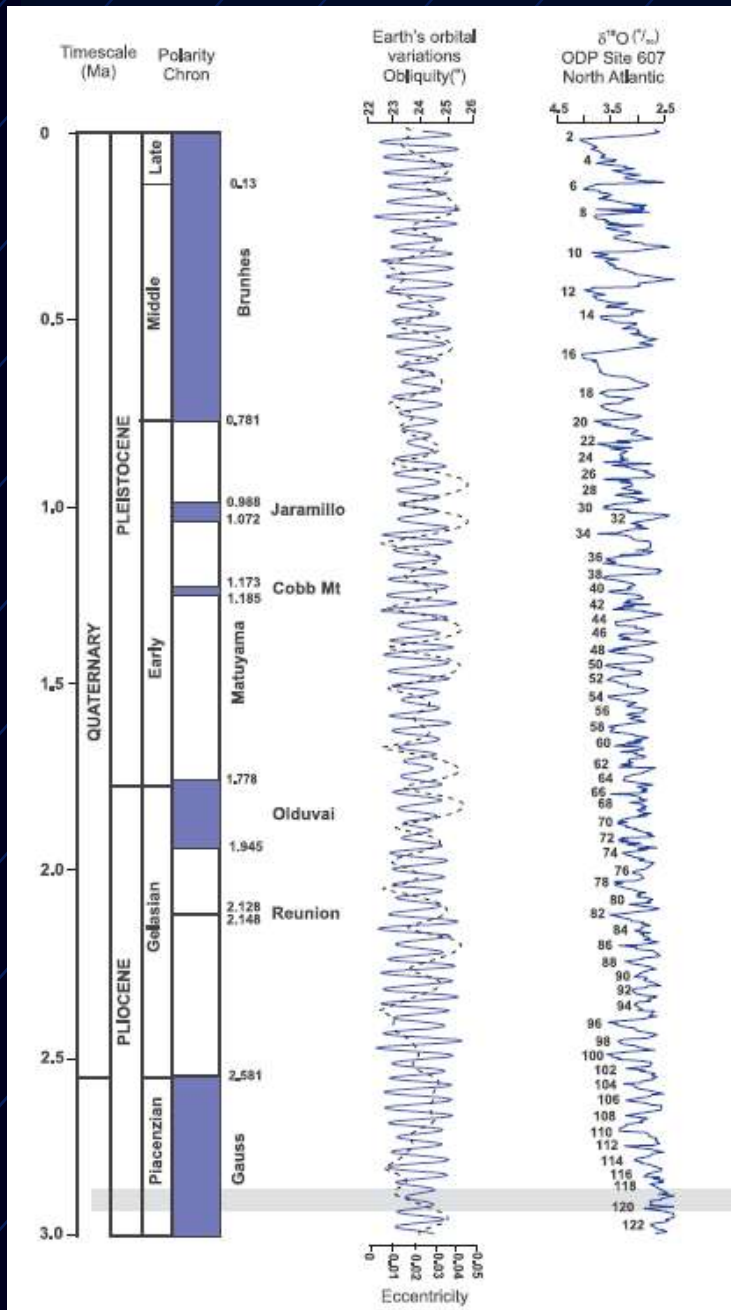


Figure 7 Stratigraphy and chronology of loess and tephras at Rangitatau East section, Wanganui Basin, and relationships to marine terraces (after Pillans, 1994).



Çin'deki Luochuan kesitinde Löss/paleosol istifi . Lösslerdeki Matuyama/Brunes sınırı **derin deniz karotları** ile deneştirilerek oluşturulmuştur (Zhou and Shackleton 1999).

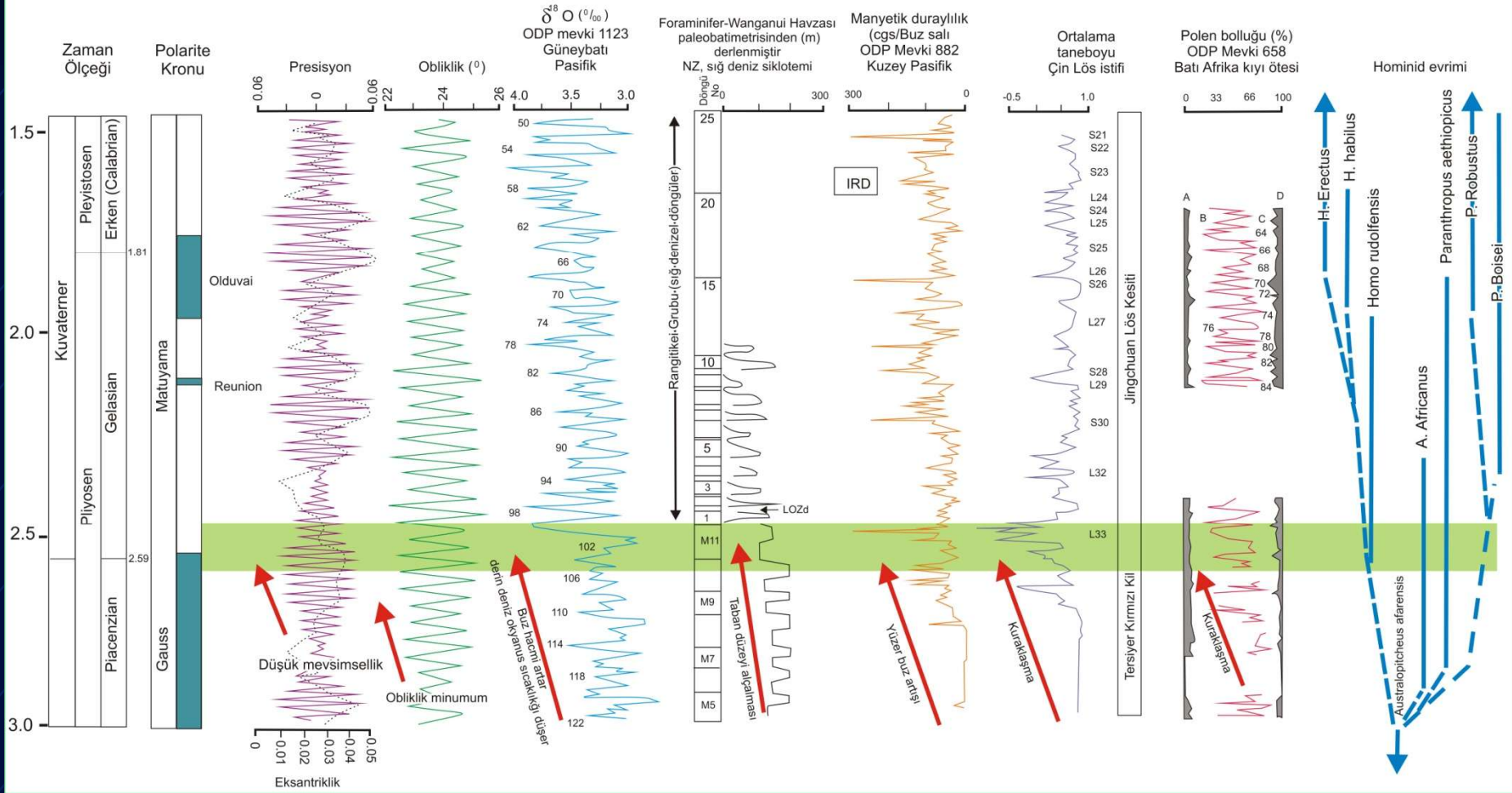


Kuvaterner'deki eksensel deęişimler ve K. Atlantik'ten elde edilen O18 deęerleri

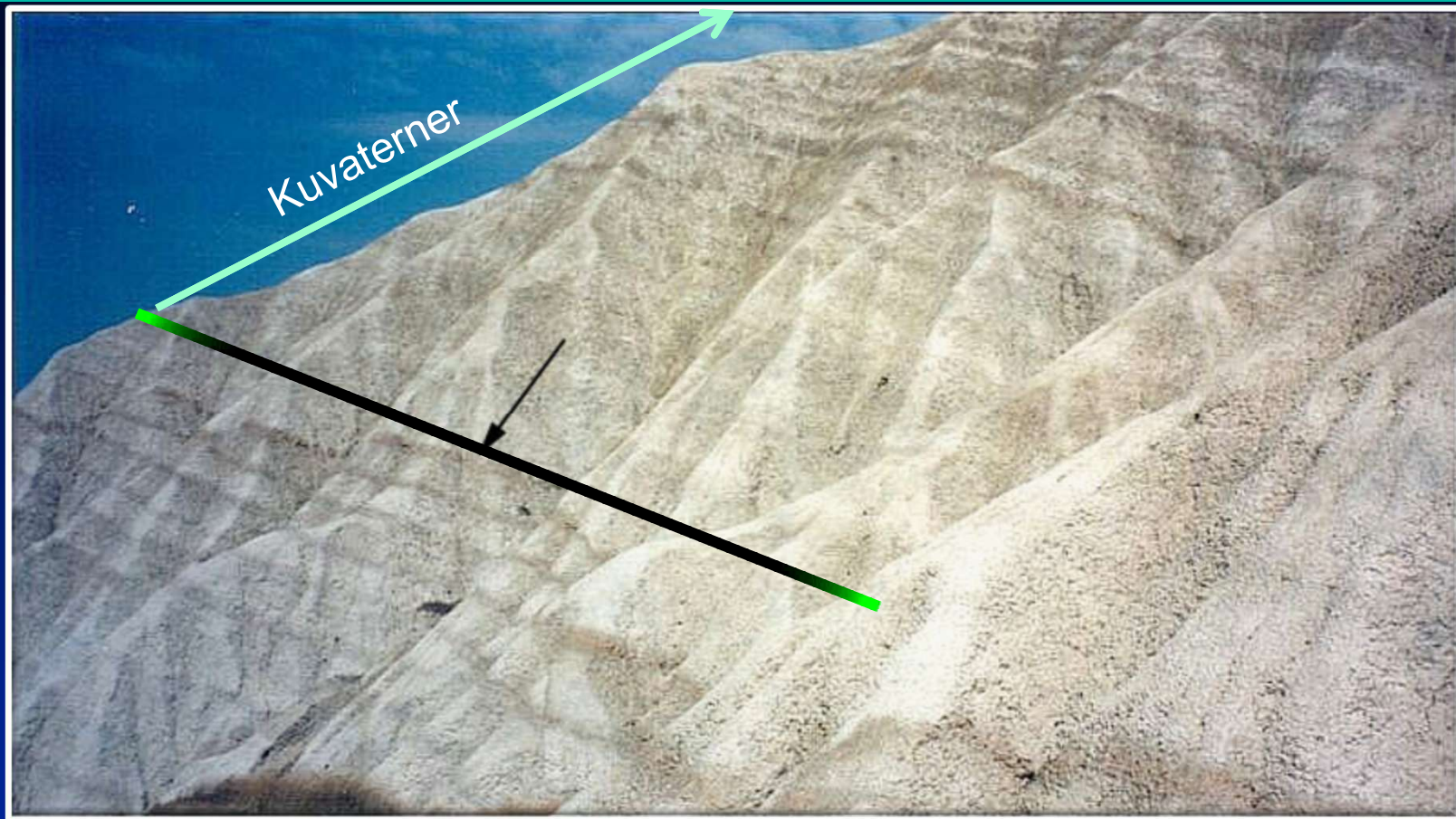
Chronostratigraphic units, paleomagnetic datums, and ages for the Quaternary (from Lourens et al., 2004)

Orbital variations in obliquity and eccentricity from Berger and Loutre (1991). Oxygen isotope record from ODP Site 607 (from Raymo et al. 1989).

Adapted from Pillans and Naish (2004).



Kuvaterner tabanını tanımlayan yaklaşık 2.6 My daki orbital güçler ve paleo iklim arasındaki ilişkinin özeti (Pillans ve Naish, 2004)



GSSP (arrow) for the Gelasian Stage
and proposed GSSP for the Quaternary Sub-Era (Rio et al., 1998)

Image courtesy of International Commission on Stratigraphy