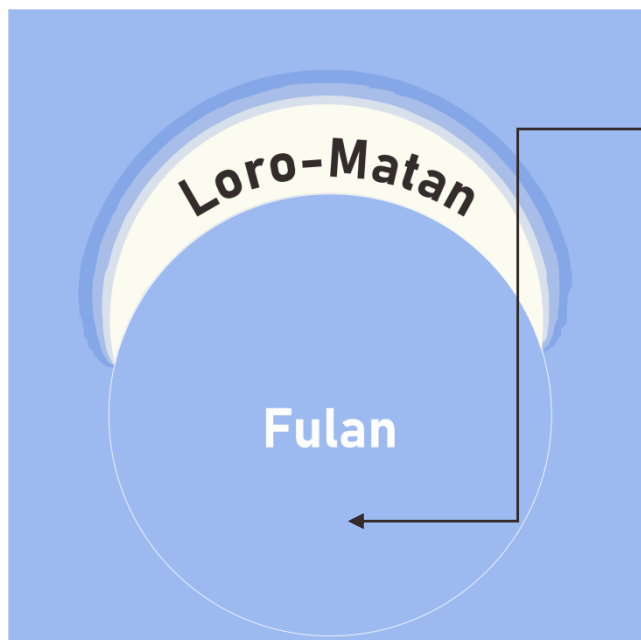


Loro-Mate Total 2023

Timor-Leste





Loro-mate (Eclipse Solar) akontese bainhira Fulan nia pozisaun hela iha disku Loro-matan nia oin, nune'e taka tiha parte vizivel Loro-matan nian (ida-ne'e hanesan bainhira uza ita nia liman hodi taka lampu nia naroman ne'ebé iha ita nia oin).



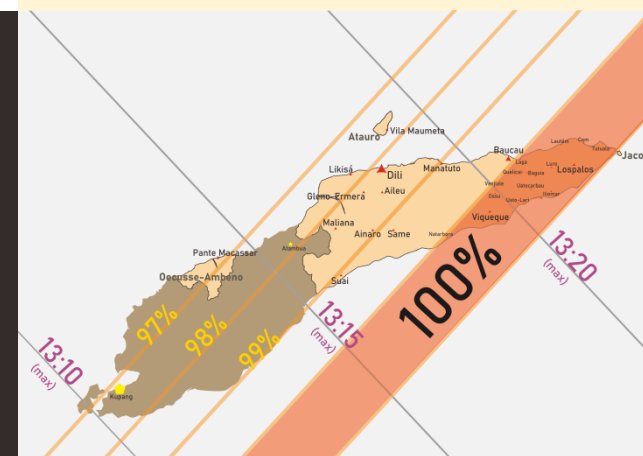
Bandu maka'as atu haree direktamente ba Loro-matan sein uza protesaun especial ba matan (ezemplu: ókulu loro-mate nian). Se ita halo ida-ne'e, sei estraga ita nia matan permanente!



Ókulu metan baibain ne'ebé faan iha merkadu, labela proteje matan husi perigu radiasaun inframean no ultravioleta.



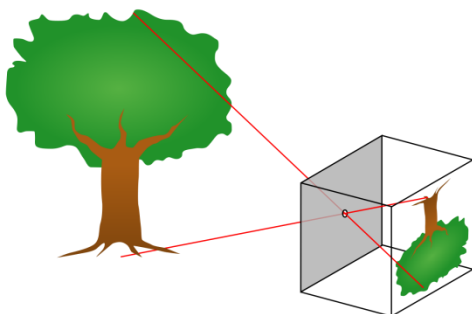
Ita foin bele haree direktamente ba Loro-mate iha momentu loro-mate total de'it, bainhira loro-matan ne'e taka tomak ona (ne'ebé akontese durante 1 minutu de'it). Depois, uza fali protesaun matan (ez., ókulu loro-mate nian) bainhira naroman husi loro-matan nia sorin ida hahú mosu fali.





OBRIGATÓRIU atu uza ókulu loro-mate nian ka métodu protesau seluk (Ez. Kaixa kamera ho kuak ki'ikoan) hodi evita **MATAN DELEK PERMANENTE**. Exetu, durante akontese Loro-mate total (ne'ebé ho durasaun liu minutu 1),

Garante katak ókulu loro-mate nian hotu iha kondisaun diak, la iha defeitu no funsiona totalmente hodi redus raiu loro nian to'o nivel ne'ebé konviente ba ita-nia matan.

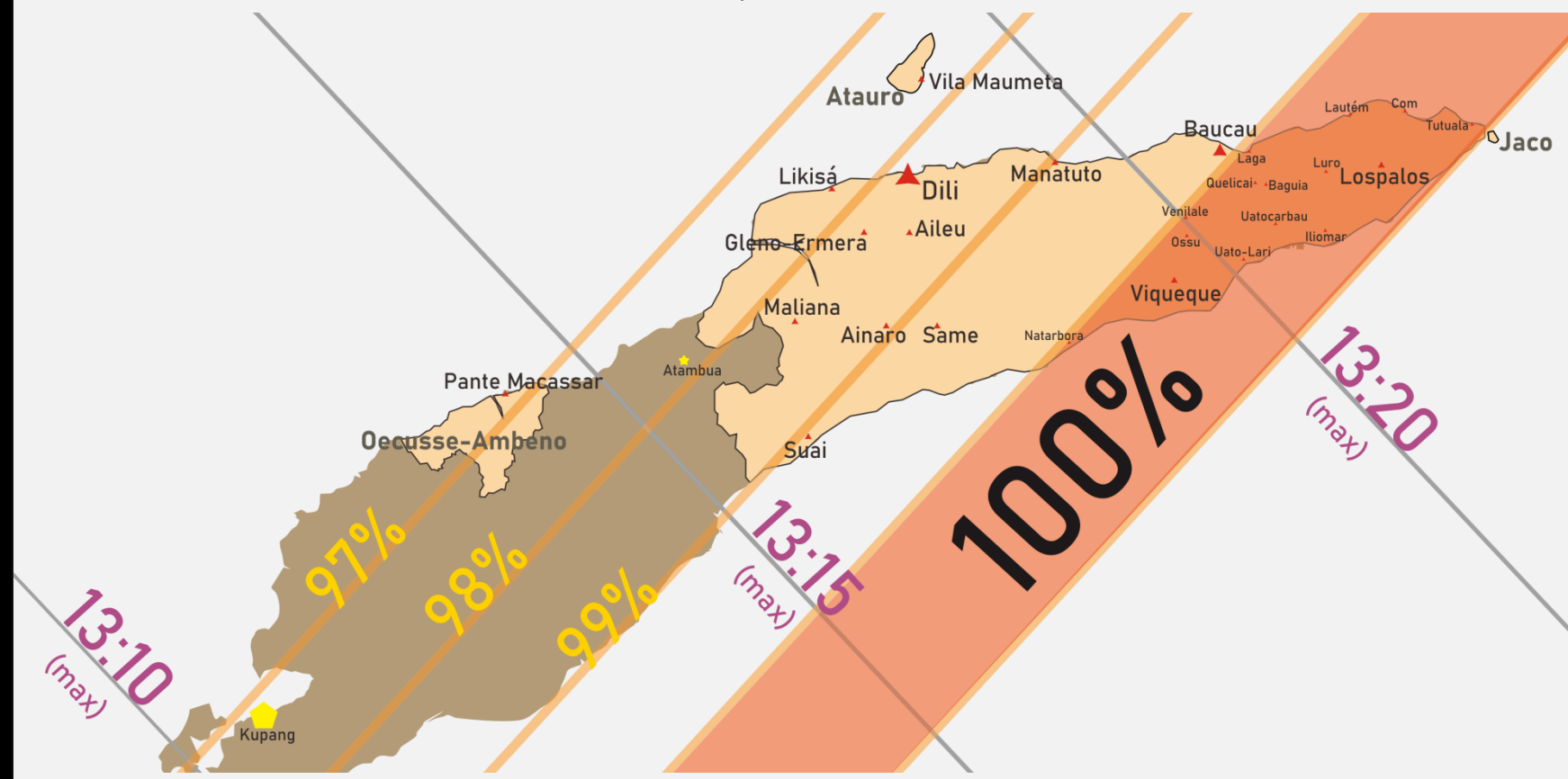


Kaixa kámara ho kuak ki'ikoan bele halo ho halo kuak ki'ikoan ida iha papelaun (kaixa husi dos) hodi leno loro ba superfísie tetuk ne'ebé bele observa ho fasil. Observasaun ho uza kaixa kámara ho kuak ki'ikoan permite ita atu haree ba lalatak loro nian ne'ebé forma iha superfísie planu, exetu durante loro-mate total.





Tempu akontese loro-mate no ninia másimu husi fatin ida ba fatin seluk sei diferente. Ida-ne'e akontese tamba depende ba pozisaun relativa Fulan nia iha relasaun ho observador nia lokalizasaun (Ne'e hanesan bainhira ita taka lampu nia naroman ba ita-nia matan loos, maibé ita-nia matan karuk sei bele haree nafatin lampu).



Timor-Leste bele haree loro-mate husi 97% (parsial ka sorin) ba to'o 100% (Loro-mate total) Bele haree Loro-mate total husi Lautem, Viqueque, area seluk tan iha Baucau.

Tempu Loro-mate iha Kapítal Munisípiu ida-idak



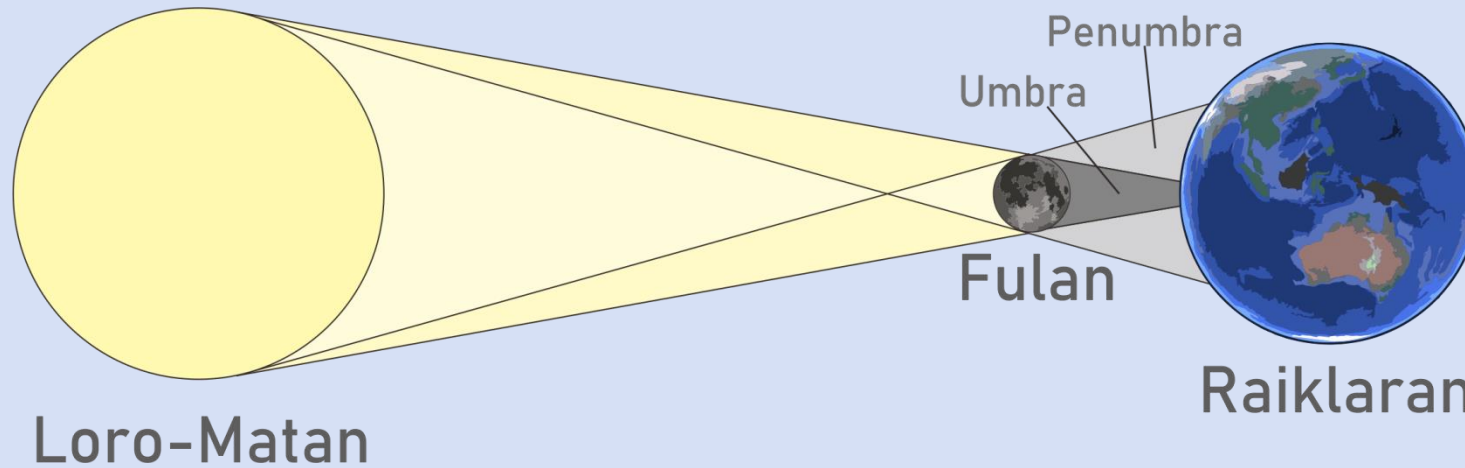
Kapítal	Munisípiu	%	Durasaun	Durasaun totalidade	Loro-mate parsiál hahú	Loro-mate total hahú	Másimu	Loro-mate total remata	Loro-mate parsiál remata
Lospalos	Lautém	100.0%	3:10:32	0:01:07	11:46:13	13:21:13	13:21:46	13:22:20	14:56:45
Baucau	Baucau	99.9%	3:10:30	-	11:45:15	-	13:20:39	-	14:55:45
Viqueque	Viqueque	100.0%	3:10:28	0:01:09	11:44:20	13:19:04	13:19:38	13:20:13	14:54:48
Manatuto	Manatuto	99.0%	3:10:25	-	11:19:34	-	13:19:34	-	14:54:46
Dili	Dili	98.0%	3:10:20	-	11:43:27	-	13:18:30	-	14:53:47
Aileu	Aileu	98.4%	3:10:20	-	11:43:05	-	13:18:08	-	14:53:25
Same	Manufahi	99.3%	3:10:21	-	11:42:42	-	13:17:44	-	14:53:03
Liquiçá	Liquiçá	97.4%	3:10:16	-	11:42:58	-	13:17:55	-	14:53:14
Gleno	Ermera	98.2%	3:10:17	-	11:42:34	-	13:17:31	-	14:52:51
Pante Macassar	S.A.R. Oecusse-Ambeno	96.5%	3:09:58	-	11:40:02	-	13:14:31	-	14:50:00
Vila Maumeta	Atauro	97.3%	3:10:20	-	11:44:04	-	13:19:10	-	14:54:24

Tempu Loro-mate iha Postu Administrativu

Postu Administrativu	Munisípiu	%	Durasaun	Durasaun totalidade	Loro-mate parsial hahú	Loro-mate total hahú	Másimu	Loro-mate total remata	Loro-mate parsial remata
Baguia	Baucau	100.0%	3:10:31	0:01:15	11:45:21	13:20:10	13:20:48	13:21:25	14:55:52
Quelicaí	Baucau	100.0%	3:10:28	0:01:02	11:45:15	13:20:07	13:20:38	13:21:09	14:55:43
Laga	Baucau	100.0%	3:10:28	0:00:20	11:45:29	13:20:43	13:20:53	13:21:03	14:55:57
Lautém	Lautém	100.0%	3:10:30	0:01:12	11:46:21	13:21:17	13:21:53	13:22:29	14:56:51
Com	Lautém	100.0%	3:10:31	0:01:14	11:46:40	13:21:38	13:22:15	13:22:52	14:57:11
Tutala	Lautém	100.0%	3:10:32	0:00:36	11:46:59	13:22:19	13:22:37	13:22:55	14:57:31
Iliomar	Lautém	100.0%	3:10:29	0:01:03	11:45:32	13:20:28	13:21:00	13:21:31	14:56:01
Ossu	Viqueque	100.0%	3:10:26	0:00:47	11:44:37	13:19:32	13:19:56	13:20:19	14:55:03
Beaco	Viqueque	100.0%	3:10:25	0:01:16	11:44:22	13:19:01	13:19:39	13:20:17	14:54:47
Uatolari	Viqueque	100.0%	3:10:27	0:01:16	11:44:54	13:19:38	13:20:16	13:20:54	14:55:21
Uatocarbau	Viqueque	100.0%	3:10:28	0:01:13	11:45:13	13:20:01	13:20:38	13:21:14	14:55:41

Umbra (ho lian latín “Lalatak”) hanesan parte lalatak ne’ebé iha klaran no nakukun liu bainhira akontese loro-mate total.

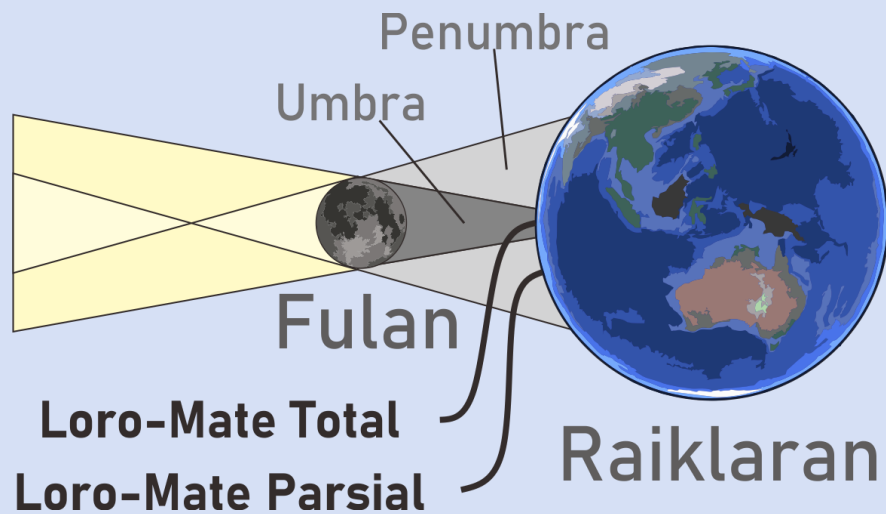
Penumbra (ho lian latín “besik” ka “kuaze”) mak nu’udar rejiaun ne’ebé fonte naroman parte balu/sorin de’it mak taka tiha, nune’e akontese loro-mate parsiál.



Loro-mate akontese bainhira Fulan liu entre Raiklaran ho Loro no hamutuk iha liña loos ida. Bainhira loro-mate total, Fulan taka tomak Loro-matan, no bainhira loro-mate parsiál no kadeli (anular) Loro-matan nia parte balu de’it mak taka.

Loro-mate no fulan-mate, sira hotu la akontese fulafulan tanba Fulan nia órbita (dalan hale’u ba raiklaran) mak hali’is besik 5 grau hosi órbita Raiklaran nian.

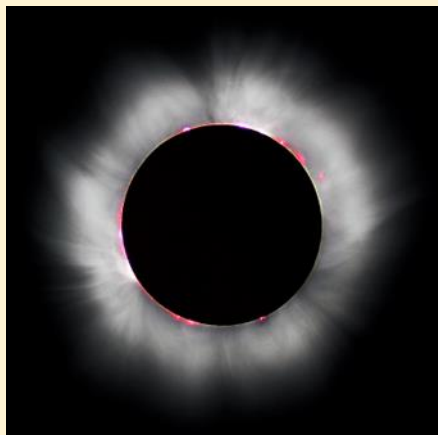




Loro-mate total bele haree de'it husi área ne'ebé relativamente ki'ikoan iha fatin espesifiku balu iha Raiklaran, no so bele akontese fali tan iha fatin hanesan **kada tinan 360 to'o tinan 410**.^{[1][2]} Ida-ne'e diferente ho fulan-mate ne'ebé ita bele haree husi fatin hotu iha Raiklaran bainhira nia akontese daudaun.

[1] Harrington, Philip S. (1997). *Eclipse! The What, Where, When, Why and How Guide to Watching Solar and Lunar Eclipses*. New York: John Wiley and Sons. ISBN 0-471-12795-7.

[2] Steel, Duncan (1999). *Eclipse: The celestial phenomenon which has changed the course of history*. London: Headline. ISBN 0-7472-7385-5.



Loro-mate total

Luc Viatour <https://Lucnix.be>



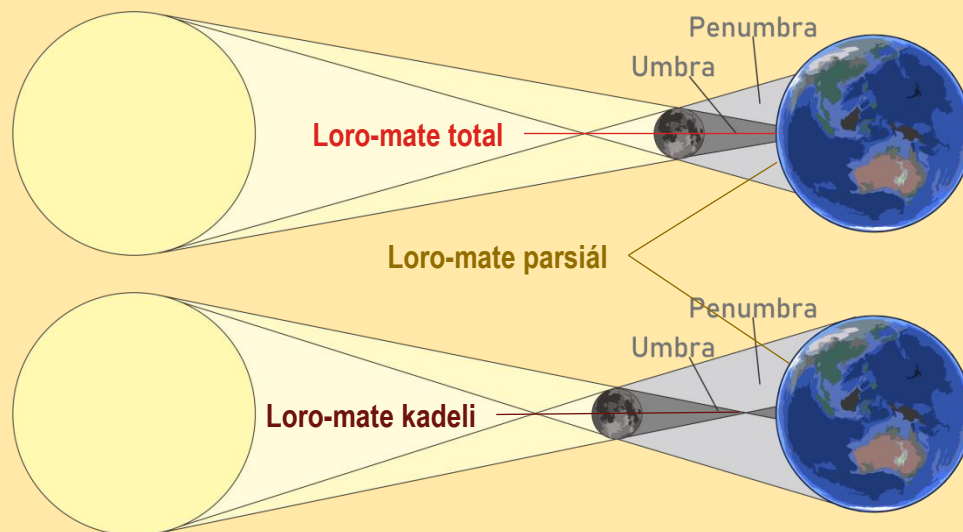
Loro-mate kadeli

Smrgeog (Wikimedia)



Loro-mate parsíál

Yurakum (Wikimedia)



Iha loro-mate oin tolu: [3][4]

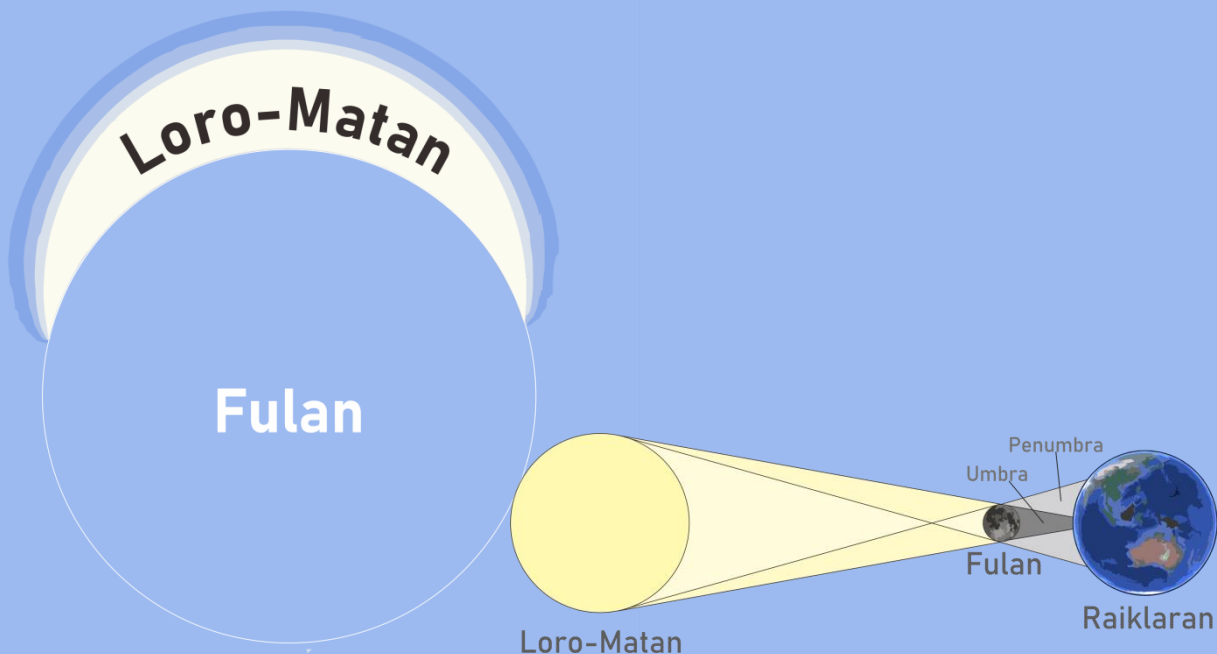
1. **Loro-mate total:** Ida-ne'e bele akontese bainhira silhueta fulan nakukun nian (lalatak fulan nakukun nian) taka naroman lakan maka'as loro nian, ida ne'e sei permite ita bele haree hetan koroa ne'ebé lakan ladún moos.
2. **Loro-mate kadeli:** Ida-ne'e akontese bainhira Loro ho Fulan ezatamente iha liña ida de'it ho Raiklaran, maibé Fulan nia tamañu ne'ebé mosu ki'ik liu Loro nian, nune'e haree Loro hanesan kadeli naroman.
3. **Loro-mate parsíál:** Ida-ne'e akontese bainhira Loro no fulan la ezatamente iha liña ida ho Raiklaran, nune'e Fulan taka Loro sorin balu de'it. Ida ne'e baibain bele haree husi fatin boot iha Raiklaran ne'ebé dook husi dalan ka ai-fatin loro-mate kadeli ka total nian.

Loro-mate íbrida refere ba loro-mate ida-ne'ebé muda entre loro-mate kadeli no total ho akontese tuir loro-mate nia dalan. [5] Loro-mate iha loron 20 Abril, mak loro-mate kadeli bainhira besik ba ninia dalan hahú no nia muda fali loro-mate total bainhira besik ninia dalan remata. (Oseanu índiku no oseanu pasífiku).

[3] Bernoskie, Brandi & Miller, Denise (2017). *What Is An Eclipse?* www.nasa.gov.

[4] *Eclipse: Who? What? Where? When? and How?* | Total Solar Eclipse 2017. eclipse2017.nasa.gov.

[5] Harrington, Philip S. (1997). *Eclipse! The What, Where, When, Why and How Guide to Watching Solar and Lunar Eclipses*. New York: John Wiley and Sons. ISBN 0-471-12795-7.



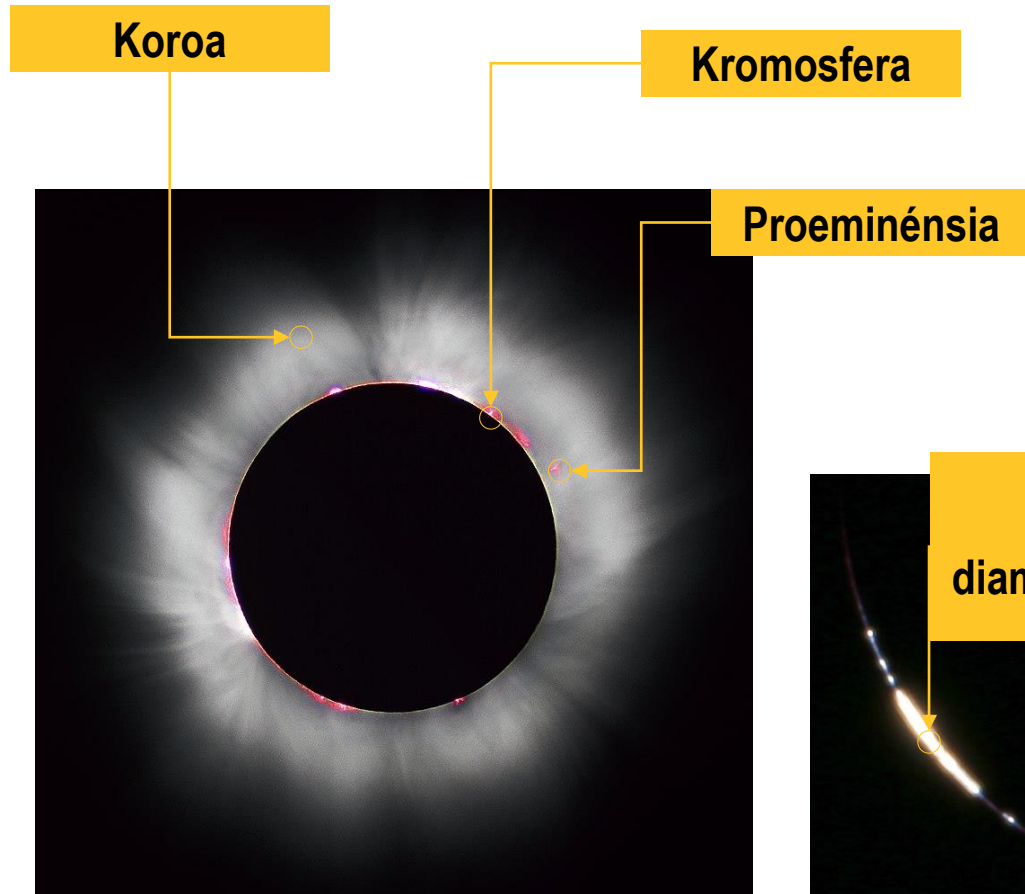
Loro-matan nia diámetru maizumenus boot liu fulan nian dala **400** (1.39 millaun km and 3,475 km, respetivamente ka ba ida-idak), maibé tanba Loro nia distánsia mai Raiklaran dook liu duké fulan nian mai Raiklaran (149,6 millaun km no 384 mil km, ba ida-idak), nune'e observadór husi raiklaran haree sira rua nia tamañu kuaze atu hanesan.



Previzaun dahuluk kona-ba loro-mate no fulan-mate hahú iha Xina iha sékulu dahaat aC, bainhira astronomu no astrologu Xina nian ho naran Shi Shen halo esplikasaun kona-ba previzaun loro-mate no fulan-mate ho utiliza pozisaun relativu Fulan no Loro nian.^[6]

[6] Needham, Joseph (1986). *Science and Civilization in China: Volume 3*. Taipei: Caves Books. pp. 411–413. OCLC 48999277.

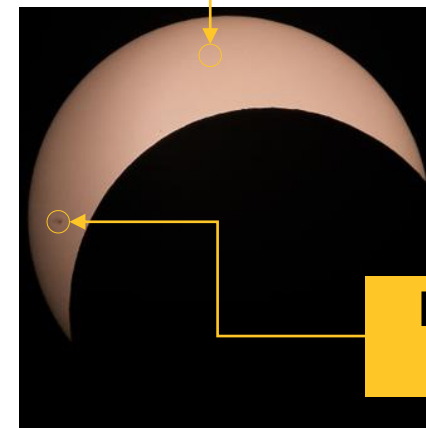
Karaterístika sira kona-ba Loro-mate



Luc Viatour <https://Lucnix.be> (Wikimedia)



Tomruen (Wikimedia)

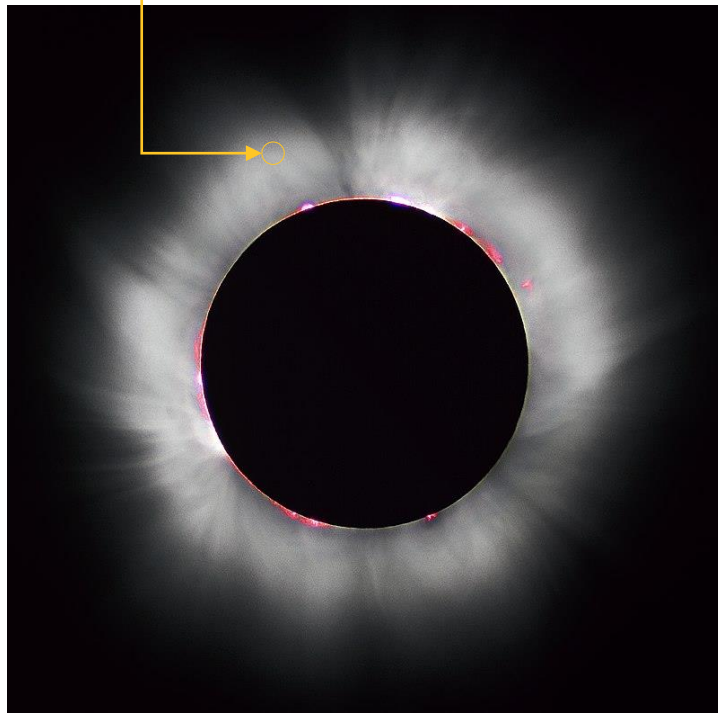


Yurakum (Wikimedia)

Karaterístika sira kona-ba Loro-mate



Koróa



Koróa loro nian mak kamada ida-ne'ebé iha parte li'ur/exterior husi atmosfera loro nian. Nia forma husi plasma no manas liu hotu, nia mós manas liu duké loro nia superfísie ho temperatura aas liu 1 grau Celsius.

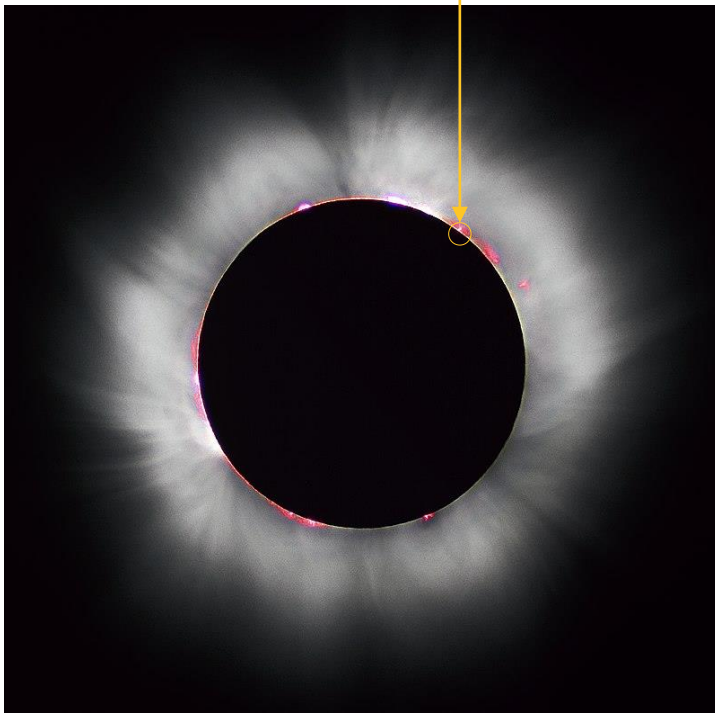
Bele haree koróa loro nian durante akontese loro-mate total, maibé bele observa mós ho uza *koronagrafu*.

Luc Viatour <https://Lucnix.be> (Wikimedia)

Karaterístika sira kona-ba Loro-mate



Kromosfera



Luc Viatour <https://Lucnix.be> (Wikimedia)

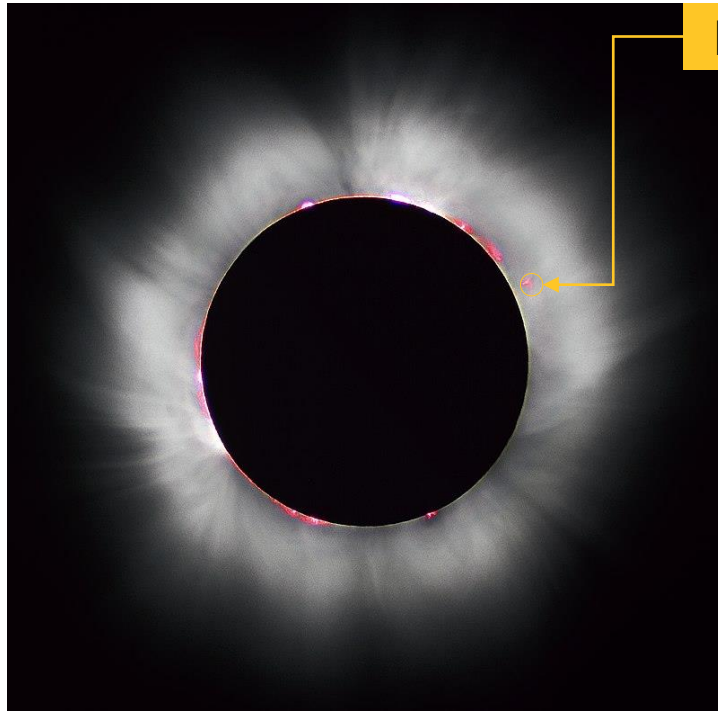
Kromosfera hanesan kamada atmosfera daruak Loro nian, ne'ebé lokaliza iha fotosfera nia leten no iha rejiaun tranzisaun loro (solar) no koroa. Ninia mahar besik 1% husi Loro nia raiu. Kromosfera iha karaterístiku kor mean tanba nia emití (fó sai) eletromagnétika iha liña espektrum Hidrogen-alpha ($H\alpha$).

Kromosfera bele haree bainhira akontese loro-mate total, iha-ne'ebé nia kor ne'ebé atu sai mean (hamean) mosu.

Karaterístika sira kona-ba Loro-mate



Proeminénsia



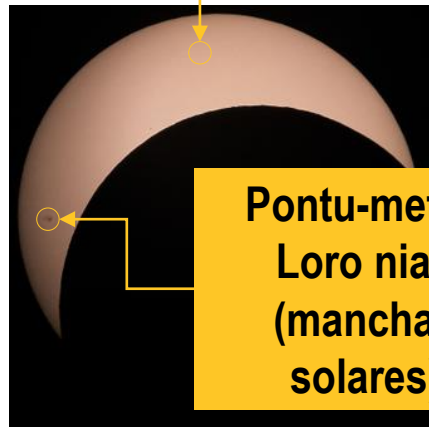
Proeminénsia hanesan estrutura plasma boot no kampu magnétiku ne'ebé hanaruk mai li'ur husi Loro-matan nia superfísie, no dala barak ho forma hanesan le'un. Proeminénsia sira mak ankor (futasau) ba Loro nia superfísie iha fotosfera no hanaruk mai li'ur to'o iha koroa loro nian. Mezmua koroa kompostu husi plasma ne'ebé manas loos, proeminénsia sira konten plasma ne'ebé malirin liu, ho sira nia kompozisaun hanesan ho kromosfera.

Luc Viatour <https://Lucnix.be> (Wikimedia)

Karaterístika sira kona-ba Loro-mate



Fotosfera



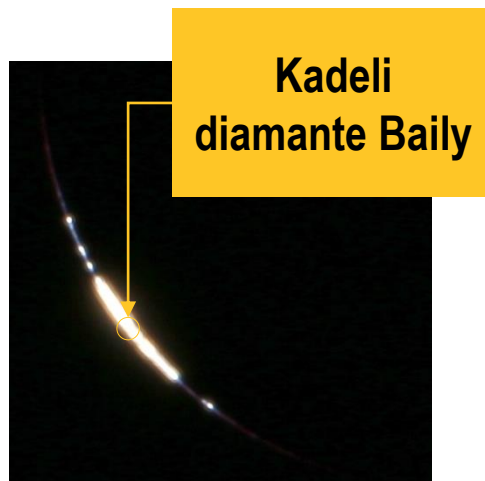
Yurakum (Wikimedia)

**Pontu-metan
Loro nian
(manchas
solares)**

Fotosfera mak kamada liur (esternu) Loro nian ne'ebé fó sai naroman. Ho ninia temperatura entre 4.250 no 5.750 grau Celsius.

Pontu-metan Loro nian (manchas solares) mak hanesan fenómenu iha fotosfera ne'ebé mosu pontu-metan sira ba tempu badak ka temporáriu no nakukun liu duké área seluk iha ninia sor-sorin. Pontu sira-ne'e hanesan áreas sira-ne'ebé ho temperatura superfísie ki'ikliu tanba ninia konsentrasaun fluxu magnétiku ne'ebé difikulta konveksaun.

Karaterístika sira kona-ba Loro-mate



Tomruen (Wikimedia)

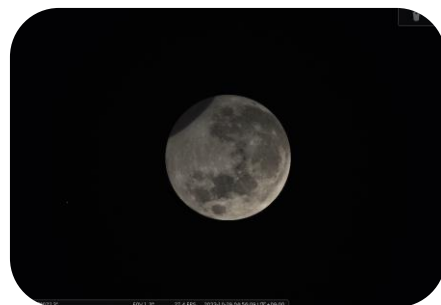
Efetu husi kadelia diamante Baily mak hanesan karakterístika ida hosi Loro-mate total no loro-mate kadeli. Bainhira Fulan taka Loro-matan durante akontese loro-mate, Fulan nia ninin ho topografia dalas (la kabeer) sei halo loro nia naroman sei nabilan hanesan diamante (musan).

Efetu ida-ne'e fó naran tuir Francis Baily, ne'ebé nia esplika fenomenu ne'e iha tinan 1836.

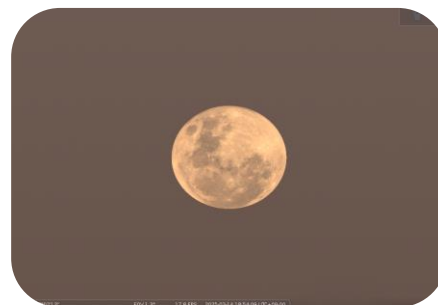
Loro-Mate no Fulan-Mate ne'ebé bele haree husi Timor-Leste



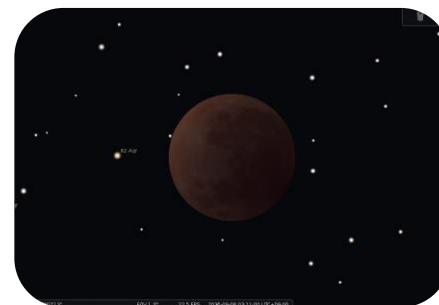
6 de maio de 2023
Fulan-Mate Penumbral



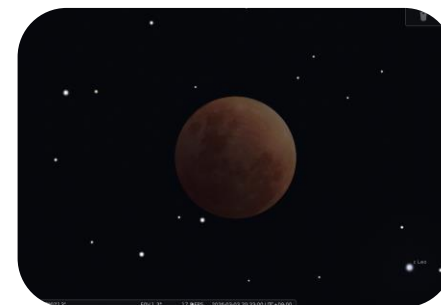
29 de outubro de 2023
Fulan-Mate Parcial



14 de março de 2025
Fulan-Mate Penumbral
(bainhira Fulan sa'e)



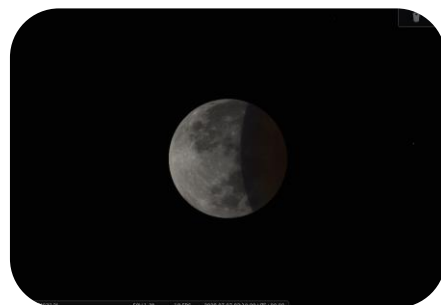
8 de setembro de 2025
Fulan-Mate Total



3 de março de 2026
Fulan-Mate Total



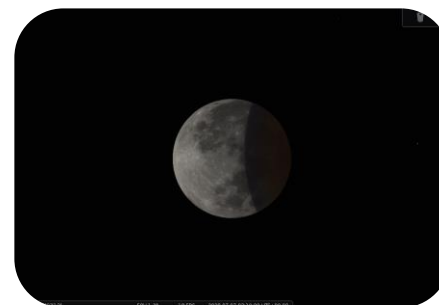
21 de fevereiro de 2027
Fulan-Mate Penumbral
(bainhira Fulan tun)



7 de julho de 2028
Fulan-Mate Parcial



22 de julho de 2028
Loro-Mate Parcial



1 de janeiro de 2029
Fulan-Mate Total



21 de dezembro de 2029
Fulan-Mate Parcial
(bainhira Fulan tun)

Obrigado

Autor

Bonifasius Adi Nugroho & Luis Nivio de Fátima Soares

