

Did the Solar Eclipse of 9 March 2016 Attract Tourist to Come to Indonesia?

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ABSTRACT- Solar eclipse phenomenon is one of the spectacular events in nature. On 9 March 2016, the solar eclipse happened in several regions in Indonesia. This event attracted tourists to visit Indonesia. The tourists came for not only seeing the beautiful solar eclipse scene but also getting sensation of myths and cultures in Indonesia during the solar eclipse. Here, the aim of this study was to discuss about the effects of solar eclipse event on the increases in the number of tourists to Indonesia and influence of foreign exchange in Indonesia. Research methodology used in this study was a literature study comparing to statistical data of a number of tourists who come to Indonesia. To investigate about myths in Indonesia, we took literature study by collecting information from international journals relating to myths in Indonesia. Afterwards, to investigate the tourist effect on economy of Indonesia, we used data from Indonesian Central Bureau of Statistics about hotel occupancy and exchange rate. The data was also compared to the economic data (before and after total solar eclipse occur). In conclusion, although ancient people agree that the solar eclipse is a dangerous event, the modern people think that the event is one of the spectacular phenomena. Combination of beautiful nature with myths and cultures in Indonesia attracted more tourists to visit Indonesia. Indeed, the event gave beneficial points for Indonesian people because tourists gave a financial advantage to local people. Thus, the long-term goal is to give information that Indonesian people must be able to take chance the natural wealth of Indonesia to attract tourists to improve the local economy in Indonesia.

Keywords: *eclipse; myth; science; tourist; economy*

1. INTRODUCTION

Solar eclipse phenomenon is a rare event that happens in the universe. This phenomenon occurs when the Sun and the Moon are in a line in a few minutes, so that sunlight is covered by the Moon, resulting the darkening sky. (Fabian, Winterhalter, & et al, 2001; Foken, Wichura, & et al, 2001; Nishanth, Ojha, & et al, 2011) This eclipse takes place in several phases: (i) the first contact, when the Moon began to cover the Sun's edge; (ii) the second contact, when almost the entire disk of the Moon covered the Sun; (iii) the maximum eclipse, when the disk of the Sun is covered entirely by the Moon, the distance between the two discs is very small; (iv) the third contact, when the Moon starts to release from the Sun, and the maximum eclipse phase has been completed; and (v) the fourth phase, when the Moon starts to go from the Sun. The solar eclipse phenomenon of this phase has been completed. (Tiwari, N. K. 2015). Most ancient Indonesian people believe myths during the solar eclipse. The pre-Islamic Javanese people believed that during the solar eclipse, Batara Kala swallows the Sun because of his anger. (Keeler, W. 1988; Wirahmihardja, S. D. 2014). Therefore, people are prohibited from conducting activities, especially activities that were considered as taboos. Pre-Islamic Javanese people believed that during the progress of solar eclipse, pregnant women and children should hide inside the house to avoid anger of Batara Kala. They also believed that

during the solar eclipse, people should not do these activities, such as building a house, eating, hosting a wedding party, and looking at the Sun directly. Further, they believed that these following activities should be conducted, such as cleaning the house and belongings heritage during the solar eclipse phenomenon.

On 9 March 2016, the solar eclipse phenomenon occurred in several regions in Indonesia (see **Table 1**). Total solar eclipse happens in Palembang (South Sumatra), Bangka Belitung, Sampit and Palangkaraya (Central Borneo), Balikpapan (East Borneo), Palu, Poso, Luwuk (Central Sulawesi), Ternate and Halmahera (North Maluku), West Sulawesi, Bengkulu, Jambi and West Borneo. Whilest, some locations in Indonesia experienced partial solar eclipse phenomenon, such as Padang (West Sumatra), Jakarta, Bandung, Surabaya, Pontianak, Denpasar, Banjarmasin, Makassar, Kupang, Manado and Ambon. This phenomenon attracted tourists to visit Indonesia. The reason for visiting Indonesia is not only to see the beauty of the solar eclipse phenomenon, but also to enjoy some myths and indigenous cultures in Indonesia.

Table 1. Solar eclipse data in Indonesia, on March 9, 2016 (Source: BMKG Indonesia)

Site	Province	Time of first contact, LT	Time of eclipse maximum, LT	Time of fourth contact, LT	Maximum obscuration of solar disk, %
Bandung	West Java	06:19	07:21	08:32	88.76
Jakarta	DKI Jakarta	06:19	07:21	08:31	88.76
Padang	West Sumatra	06:21	07:20	08:27	95.41
Surabaya	East Java	06:21	07:25	08:39	83.08
Pontianak	West Borneo	06:23	07:27	08:40	90.95
Denpasar	Bali	07:22	08:27	09:42	76.53
Makassar	South Sulawesi	07:25	08:34	09:54	88.54
Kupang	East Nusa Tenggara	07:28	08:37	09:55	65.49
Banjarmasin	South Borneo	07:33	08:30	09:27	98.17
Manado	North Sulawesi	07:34	08:29	10:15	96.66
Ambon	Maluku	08:33	09:29	11:16	86.91

Note: LT is local time

The ancients believed that the solar eclipse is something that is very dangerous because it is loaded with mystical and magical powers. Therefore, they performed various rituals during the solar eclipse to avoid the incoming dangers. However, because of its uniqueness, this ritual is exactly able to attract tourists. In Palembang, a unique tradition during the solar eclipse is done by scrawling

face of the child with charcoal to avoid the devil's anger. The Dayak in Borneo believes that during the solar eclipse phenomenon, they must perform rituals, such as: (i) covering their heads to avoid graying, (ii) shaking the tree in order to quickly harvest, and (iii) washing goods heirloom. In addition, the recent Indonesian people, especially Muslims, believe that when the solar eclipse takes place, people should go to the worship and pray to God.

In addition, the solar eclipse of 9 March 2016 coincided with the celebration of Nyepi ritual performed by the Hindu. Many rituals are performed, such as Ogoh-Ogoh and the torch relay festivals. These rituals can attract more tourists to visit Indonesia. Besides, the island of Belitung also presents some interesting destination for the tourists such as Titi Hill, Paramon Hill, Limau Hill, and Samak Hill. On the Titi Hill, while enjoying the solar eclipse phenomenon, tourists can enjoy Malay music and dance performances. Some cities also held festivals to enliven this rare phenomenon. Thus, the interest for the tourists to visit Indonesia increases.

Here, the aim of this study was to discuss about the effects of the solar eclipse event on the increases in the number of tourist to Indonesia and the exchange rate. The long-term goal is to give information that Indonesian people must be able to take chance the natural wealth of Indonesia to attract tourists to improve the local economy in Indonesia.

2. RESEARCH METHODOLOGY

To determine the influence of the total solar eclipse phenomenon that occurs in some areas in Indonesia on the arrival of tourists, we analyzed the number of tourists who come to Indonesia, the number of hotel visitors in several cities in Indonesia, and rupiah exchange rate against the US dollar in the early months of 2016. The data were obtained from Badan Pusat Statistik (BPS) and some websites to support our investigation.

3. RESULTS AND DISCUSSION

3.1 The Number of Tourists

Table 2 shows the number of foreign tourists in February 2015, January 2016,

and February 2016 in several airports in Indonesia.

Table 2. Number of Tourist to Visit Indonesia (Source: Badan Pusat Statistik)

Tourists through the main airport	February 2015	January 2016	February 2016
1. Soekarno-Hatta	170.741	153.503	164.317
2. Ngurah Rai	333.072	343.663	367.024
3. Kualaamu/Polonia	18.082	10.080	14.851
4. Batam	119.642	108.888	120.351
5. Sam Ratulangi	3.374	625	1.535
6. Juanda	14.003	11.674	14.955
7. Entikong	1.873	1.050	2.307
8. Adi Sumarmo	571	465	605
9. Minangkabau	2.876	3.378	3.892
10. Tanjung Priok	6.982	5.066	6.824
11. Tanjung Pinang	8.023	5.971	8.407
12. BIL	4.348	5.162	6.184
13. Hasanuddin	931	755	876
14. Sepinggan	707	656	1.150
15. Sultan Syarif Kasim II	2.043	1.523	1.912
16. Adi Sucipto	5.379	6.415	7.899
17. Husein Sastranegara	13.008	10.964	8.402
18. Tanjung Uban	28.977	21.484	27.642
19. Tanjung Balai Karimun	8.866	6.735	8.985
Total	743.498	698.057	768.118

From the data, increases in the number of tourist arrivals during the period January-February 2016 were found, in which the increase was about 3.95%. The number of tourists to Indonesia in February 2016 reached more than 768 thousand, and this increased 3.31 percent compared to the number of tourist arrivals in February 2015. In comparison with the number of tourists in January 2016, the number of tourists in February 2016 can be classified to be increasing about 10.04%. This indicated that in March 2016, there would be an increase in tourist arrivals due to the solar eclipse phenomenon that occurred in Indonesia as reported on several news. BBC stated about 10,000 foreign tourists and 100,000 domestic tourists had been a witness of the solar eclipse phenomenon (see www.bbc.com/indonesia/berita_indonesia/2016/03/160308_indonesia_gerhana_bisnis). We also found that although Bali is not in the path of the total solar eclipse phenomenon, the number of tourists visiting Bali increased because the solar eclipse phenomenon coincided with the day of Nyepi. Beside Bali, the celebration of Nyepi is also conducted in the city of Palembang (see **Figure 1**), where the total solar eclipse phenomenon occurs, in which that is the reason for the increasing number of tourists to come Indonesia.



Figure 1. Solar eclipse festival 9 March 2016 at Palembang (Source: vivasumsel.com)

3.2. Hotel Visitors

Table 3 shows the number of visitors in 10 provinces in Indonesia. Visitors in some hotels in February 2016 reached about 54.05%, in which this number was higher (up to 11.47 points) than that in February 2015 (42.58%). Indeed, compared to the number of hotel visitors in January 2016 that amounted to 42.58%, hotel visitors in February 2016 could be classified to increase (rose up to 7.76 point). The increasing number also occurs in March 2016 when the solar eclipse phenomenon happened. As reported by Tempo, the Indonesian Hotel and Restaurant Association (IHRA) stated that thousands of hotel rooms in the area of path of the solar eclipse phenomenon were already fully booked. IHRA also estimated that during the past week of eclipse, business hotels throughout Indonesia had reaped a turnover of up to US \$ 10 million (around the Rp 135 billion with exchange rate of Rp 13,500 per US dollar) (see <https://m.tempo.co/read/news/2016/03/07/090751352/hotel-hotel-di-daerah-gerhana-matahari-habis-dipesan>).

Table 3. The Number of Visitors in Indonesia
(Source: Badan Pusat Statistik)

No	Province	Hotel Visitor (%)		
		February 2015	January 2016	February 2016
1	West Sumatra	37,22	44,32	50,39
2	Jambi	33,36	34,73	54,09
3	Bengkulu	47,06	55,68	59,68
4	Kepulauan Bangka Belitung	22,49	30,99	32,68
5	DKI Jakarta	52,32	54,44	56,15
6	Bali	60,03	54,38	62,46
7	West Borneo	45,14	44,88	55,18
8	South Borneo	39,52	36,76	47,36
9	North Sulawesi	45,95	63,02	64,9
10	Central Sulawesi	42,7	43,72	57,62
10 provinces		42,58	46,29	54,05

3.3 Rupiah Exchange Rate against the Dollar

Increases in the number of tourists visiting Indonesia due to the solar eclipse phenomenon affects the value of the rupiah against the dollar, according to the statistics shown in **Figure 2** (calculated from <http://www.xe.com/currencyconverter/>).

Figure 2a shows that in May 2015 until July 2015, the rupiah exchange rate increased from 13,000 to 13,500 rupiah per US dollar. Then, the rupiah increased considerably in August 2015 until September 2015 amounted to 14,500 rupiah per US dollar. However, in October 2015, the rupiah exchange rate decreased of about 10%. Then, the rate increased again in January 2016 to around 13,500 rupiah per US dollar. **Figure 2b** shows that the rupiah exchange rate in March 2016 to April 2016 was about 12,900 to 13,350 rupiah per US dollar. Indeed, the increases in the rate from March to April 2016 were due to the solar eclipse phenomenon. The more tourists come to Indonesia resulted in the change in exchange rate. This is because tourists bring their money to be consumed in Indonesia.

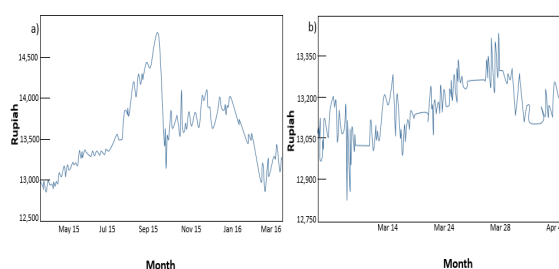


Figure 2. Rupiah exchange rate curve : a) May 2015 – March 2016, b) March 2016 – April 2016.

4. Conclusion

Based on the above data analyses, we conclude that the solar eclipse phenomenon on 9 March 2016 affects the number of tourist arrivals in Indonesia. The number of tourist arrivals and the number of hotel visitors before the solar eclipse day increased. This is due to a variety of festivals and rituals performed by Indonesian people for welcoming the solar eclipse phenomenon. Indeed, the event gives beneficial points for Indonesian people. Therefore, the long-term goal is to give information that Indonesian people must be able to take chance the natural wealth of Indonesia to attract tourists to improve the local economy in Indonesia.

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