

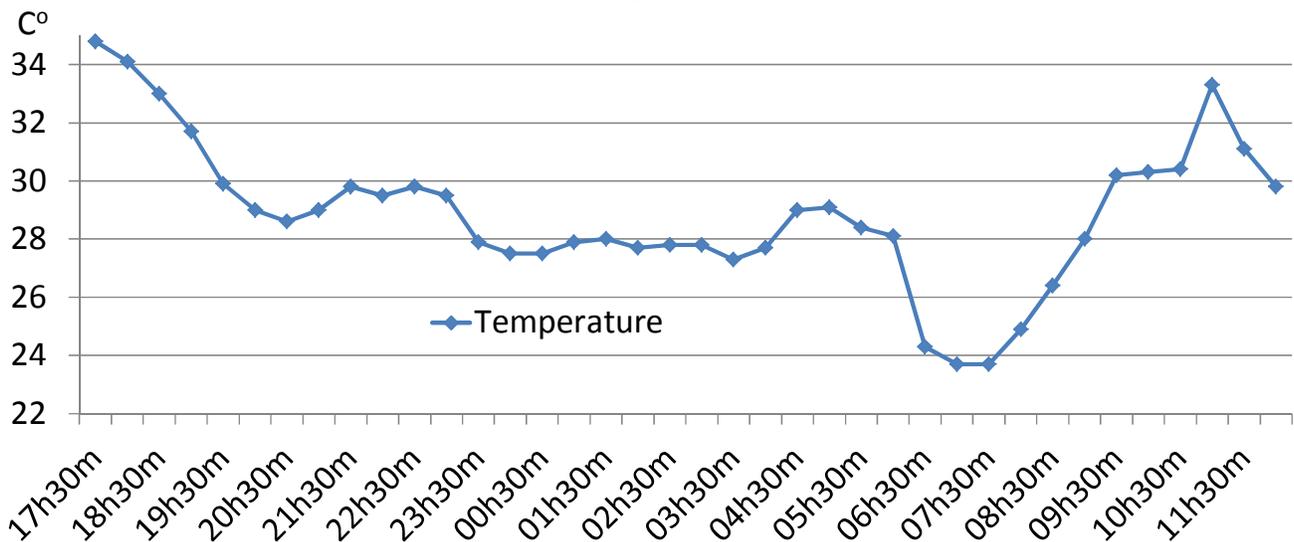
This file contains different measurements and details that were done and obtained during our trip to Erta Ale volcano and Dallol depression in Ethiopia. The file includes the following sections:

1. Temperature.
2. Altitudes.
3. Time required for different segments of the trip.
4. Security and difficulties.
5. Additional indirect measurements.
6. Visiting volcano in the evening and in the morning.

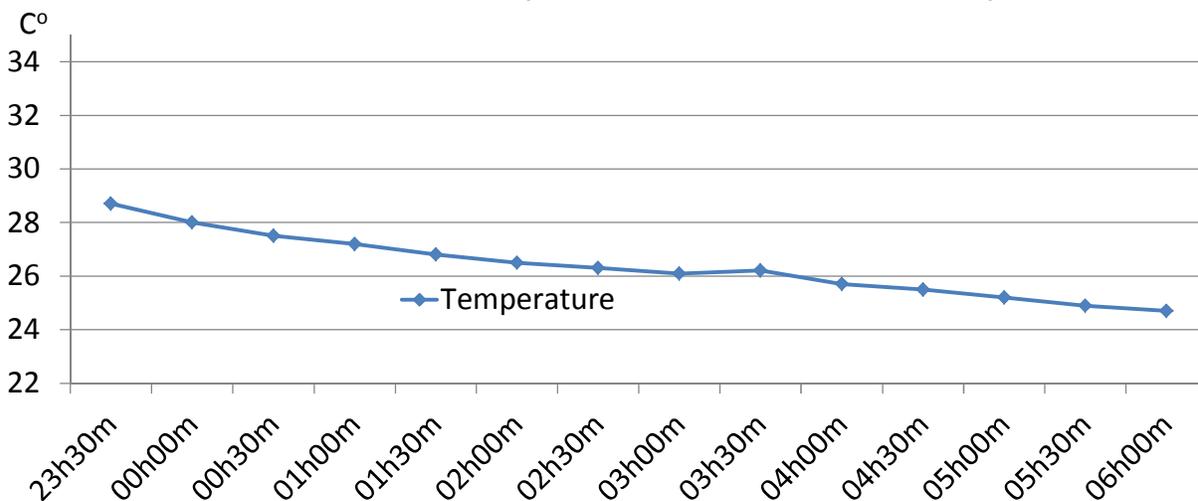
### Point 1: Temperature

The charts below present measurements of temperatures in Hamed Ela camp and in the Erta Ale base camp. Temperatures were measured and saved each half an hour by *watch Casio AQF-100* that was put near the place of sleeping and, of course, not on a hand. Thus, no additional heating/freezing was near and we believe that all the measurements are correct.

#### Temperature in Hamed Ela



#### Temperature in the Erta Ale Camp



The following comments can be given in addition:

1. Although Hamed Ela is near the hottest place of the world on average year temperature it was a bit cold during the both nights. In Hamed Ela some local people even slept in the cars. We felt lower temperature than it is indicated in the charts above. Besides, in Hamed Ela we slept on open air and there was a wind making sleeping colder. We took sleeping bags to Ethiopia and we took these bags also to the Erta Ale camp (the bags were transported by camels). At the beginning the bags were met by the local people with little irony (“why do you need them?”). Later on nobody asked us if bags are needed or not. In any case the bags helped us and we slept comfortably all three nights.
2. Our colleagues from Ethiopia told us that night temperature might be higher; however, we do not think that you will feel very hot during nights in January. Probably it will be just comfortable.
3. The day temperature was as a rule higher than given in different forecasts. We found that the most frequent temperature during midday was +37 degree C° in shadow measured by two different thermometers. The temperature never exceeded +40 degree. So, we do not believe to some reports available at the Internet giving temperature in January +45 degree C° or so. Local people also confirmed that such measurements either were done on sun, or heated surface or they are simply wrong. Similarly, the Internet forecasts are also not true. Almost all forecasts indicated rains from the 6<sup>th</sup> to the 13<sup>th</sup> of January. There was no rain at all during this time. The maximum indicated by the forecasts temperature (32-34 degrees C°) was also underscored.
4. When we went to Erta Ale from the base camp (at 17h39m) the temperature was +37 degree C°. However, it was not very hot (although I feel bad in a high temperature). We believe that it was because of the low humidity and because we looked forward to see the volcano. When we returned back from Erta Ale to the base camp (at 9h14m) the temperature was +29 degree C°.

### ***Point 2: Altitudes***

We measured altitudes by three different GPG: 1) ***Garmin Geko 201***; 2) ***Panasonic DMC-FT3*** (with embedded GPS); and 3) ***Samsung Galaxy Note 10.1*** (with embedded GPS).

1. Dallol depression has the lowest altitude in Africa. Different sources give not equal values of this place below sea level. The lowest place in Dallol in our measurements had elevation: -123 m (GPS 1), -132 m (GPS 2) below the sea level. It is known that the lowest place on Earth is Dead Sea. The surface of Dead Sea is -408 m below sea level.
2. Hamed Ela is -85 m (GPS 1), -84 m (GPS 2) below sea level.
3. The base camp has elevation 142 m (GPS 3), 176 m (GPS 2). The Erta Ale camp has elevation 565 m (GPS 3), 560 m (GPS 2), 530 m (GPS 1). The volcano rim elevation 544 m (GPS 2). Since GPS 3 is the most recent (computer of 2012) we assume that its values are the most correct. Thus, when we went to volcano on foot we raised 565-142=**423 m**. Another source, which we found at the Internet, gives the altitudes 566 and 159, i.e. raising for 566-159=**407 m**. As you can see the difference is small. It is known that the altitude of the volcano is 613 m. We assume that the highest point with this altitude is situated somewhere near.

### ***Point 3: Time required for different segments of the trip***

1. Hamed Ela – Kusrawit about 3h30m driving time (from 8h30m to 12h00m).
2. Kusrawit – the base camp about 2h10m driving time (starting from 13h35m).
3. The base camp – the Erta Ale camp: 2h33m on foot.

4. The Erta Ale camp – volcano crater in the evening – about 600 meters in one direction; about 1.5 km to and back including tracks around the crater. We spent 1h30m near the crater.
5. The Erta Ale camp – volcano crater in the morning – about 600 meters in one direction; about 1.5 km to and back including tracks around the crater. We spent 40 minutes near the crater.
6. The Erta Ale camp – the base camp: 1h50m on foot.
7. The base camp – end of lava field about 1h40m driving time (starting approximately from 10h55m).
8. The end of lava field – Hamed Ela about 4h45m with two stops to buy a goat and for lunch. Actual moving time was about 3 hours.
9. Dallol: starting time was 7h30m, returning time was between 13h00m and 13h30m.
10. Hamed Ela – Mekele about 4h45m driving time (starting from 14h55m).

#### ***Point 4: Security and difficulties***

You should be aware about potential risk because of a number of previous cases, namely mines blowing up, attack on the 17<sup>th</sup> of January in 2012 and kidnappings. One trip does not permit to make any conclusion but I would like to present my opinion which might be helpful:

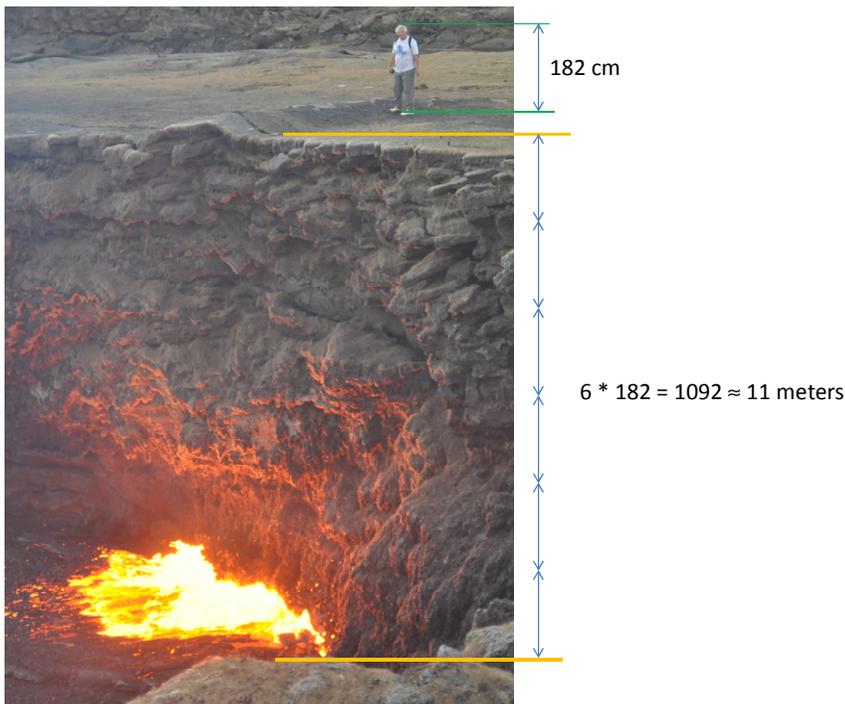
1. Local afar people live in difficult conditions and their life is not the same as life of the majority of foreign people. Please be extremely polite with them and respect their rules and traditions. In this case you can see that people are good and they will like you. During our trip all people around us behaved very correctly and clearly demonstrated their hospitality. Our opinion about local people is very good.
2. We cannot do much but even small help is greatly appreciated by local people. Take candies, eye drops. Many children asked for pens (unfortunately we did not know about pens). One guy asked us about batteries for a torch (fortunately we had them). Believe me you will be even more happy when you see how happy are local people from such small things.
3. Choose the Tour Company with a special care. First we contacted with a cheaper company (Noah Safari). After some communications we understood that this company is not reliable and we refused to deal with them. We communicated with Habesha company which was almost twice more expensive than Noah Safari. Now I can say that we were extremely happy with them and the price corresponds to the provided service and quality. It was perhaps the only tour in our long-term practice where we got much more than we expected. In fact I even cannot indicate any fault. Driving was perfect. Air conditioning functioned all time (our car was completely protected from dust). We were only two people on the back seats of the car during all the trip. Meal was fantastic. Our guide Naizgi has lots of experience in the area. Only local people were in the other two cars (many of them visited Erta Ale the first time). All cars moved all together. When we went to volcano on foot all people moved together trying to help us and to each other.
4. There was armed guard (8 military people) who went to the Erta Ale camp 15-20 minutes before we went. When we came they were in the camp. They returned back to the base camp with us. One local guy with Kalashnikov was always near us (during the way and near the crater). Military people were on the top (in the Erta Ale camp) and we saw that we were on watch. I believe such guard is required by new rules but you should ensure that armed guard is provided for your trip. It seems to me that security is significantly improved in this area but in any case visiting the volcano is on your own risk. If you are ready to undertake such risk I would like just to say that the volcano is worthy of that.
5. Be sure that you are ready for walking 10 km on foot. I am almost 63 and for me the final raise was a bit difficult although I cannot include this trip even in 10 (may be even in 20) the most difficult trips for me (they were done between 20 and 30 years ago; so please, measure the difficulties for your age). For normal people younger than 45-50 this trip is a simple trip. If you are older than 55 check in advance if you are ready. I walked before the trip from 3 km (less than 0.5 hour) to 6 km (less than 1 hour) and it was not difficult. Be sure that you have enough

water. We took with us 2 liters for each just for the way on foot and we drank water each 15 minutes. The water was almost finished when we came to the Erta Ale Camp. Water for the camp and for the way back was transported by camels. The way back was significantly easier for me. I could easily walk at least one hour more after we came to the base camp. Potentially there exists another option. We met French people on the way to Hamed Ela. From our guide I know that they visited volcano after us. They have senior ages and I expected that the way might be difficult for them. Our guide said to us that they rented camels paying 500 birr (<21 Euro) for each and went to the Erta Ale camp by camels. Note, that this information needs additional checks.

6. Hot temperature. Other people visiting volcano in January did not pay attention to high temperature, from which I can conclude that it is not the main problem in January (and, perhaps in December). Temperature for other months needs to be additionally analyzed. From other reports I can conclude, in particular, that in September it is extremely hot.
7. Flooding. We talked with Naizgi about potential problems and he said to us that such problems might arise, especially in April. Water comes mainly not from rains in the area but from surrounding mountains (if there is a strong rain in the mountains). In such situation the tracks for cars become impassable and it is very easy to get stuck. Be aware about such problem. It is very regrettable to come to the area and miss the main target (Erta Ale). Soil structure makes the ways impassable easily even in the hottest and driest place of the earth.
8. Ensure to be well protected from diarrhea, which is very common and frequently unavoidable in Ethiopia. We did not have any problem in the trip to Erta Ale and Dallol once again due to our choice of good tour company.

### ***Point 5: Additional indirect measurements***

Before the trip we found at the Internet that Erta Ale is very active now (4 from 5) and the surface of the lava lake is about 10 meters from the edge of the rim. The volcano was actually very active and up to 4 emitted lava parts periodically appeared at the same time. The drops of lava went up for more than 5-7 meters in height. The next photo permits to indirectly estimate how far the lava surface is from the edge of the rim.



From the picture on the left-hand side we can conclude that the distance is something like 11 meters. I believe such kind of measure is not correct at all. Visually we can say that the distance of the surface of the lava lake is about 15-20 meters from the edge of the rim. This might also be wrong. So, look at the picture and make your own conclusion.

Gas from the volcano essentially depends on wind direction. Sometimes it was very strong. Sometimes there was no gas at all. Be sure that wind is from your side and not from the side of the volcano. We easily stayed near the volcano 1h30m

in the evening and 40m in the morning. We took with us surgery masks (this is not gas mask). These masks can be bought in any pharmacy. It is very simple but it helped us especially when wind made gas from the volcano stronger.

If you look at the picture above you can see that lava on the edge of the rim can easily fall down (it has lots of scratches near the edge). In our opinion approaching to the edge closer than 1-2 meters might be dangerous.

### ***Point 6: Visiting volcano in the evening and in the morning***

Many people visiting the volcano and publishing their reports at the Internet have an opinion that the volcano is much more interesting in the evening than in the morning. We do not think so. The volcano is very interesting in the evening and the volcano is very interesting in the morning. It is very different and it is worth to visit the crater both in the evening and in the morning. Besides, it does not require many efforts. Going to the crater from the Erta Ale camp is simple and short. There are some holes in lava on the way. Lava is cracked. We do not believe that it has any danger. We think that there is no hot lava even in deep holes. The lava surface is cool. Do not run, take elementary care and it will be easy and safe.

If I would go again to the volcano with the same weather conditions then I would:

1. Go at least half an hour earlier; let us say from half past four to five o'clock. Although it would need to go a bit longer in a higher temperature (the temperature was the same from 16h30m to the time when we actually started – 17h39m and it was 37 degree C<sup>o</sup>) the daylight time would although be longer. We had very good torches but, in any case, going in dark is worse than going in daylight. Besides, we could sleep longer and for us sleeping time was short and eventually not enough.
2. Stay near the crater in the evening like it was done in the trip.
3. Stay near the crater in the morning like it was done in the trip (or even 10 minutes more). Sunrise when you are near the crater is very attractive.
4. Go back at the same time as in the trip, for example, half past seven would be fine.

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