

Trial Hearing  
WITNESS: MLI-OTP-P-0064

(Open Session)

ICC-01/12-01/18

1 International Criminal Court  
2 Trial Chamber X  
3 Situation: Republic of Mali  
4 In the case of The Prosecutor v. Al Hassan Ag Abdoul Aziz Ag Mohamed Ag  
5 Mahmoud - ICC-01/12-01/18  
6 Presiding Judge Antoine Kesia-Mbe Mindua, Judge Tomoko Akane and Judge  
7 Kimberly Prost  
8 Trial Hearing - Courtroom 1  
9 Tuesday, 29 September 2020  
10 (The hearing starts in open session at 9.33 a.m.)  
11 THE COURT USHER: [9:33:20] All rise.  
12 The International Criminal Court is now in session.  
13 Please be seated.  
14 PRESIDING JUDGE MINDUA: [9:33:50](Interpretation) Court is in session.  
15 Good morning, everybody.  
16 Madam courtroom officer, could you please announce the case.  
17 THE COURT OFFICER: [9:34:01] (Overlapping speakers) Thank you, Mr  
18 President, your Honours.  
19 The situation in Mali in the case of The Prosecutor versus Al Hassan Ag  
20 Abdoul Aziz Ag Mohamed Ag Mahmoud, case reference ICC-01/12-01/18.  
21 And we are in open session.  
22 PRESIDING JUDGE MINDUA: [9:34:19](Interpretation) Thank you very  
23 much, courtroom officer.  
24 We shall start as always with the appearances, starting with the Office of the  
25 Prosecutor.

26

1 MS MARTIN SALGADO: [9:34:33] Good morning, your Honours.  
2 My name is Elena Martin Salgado. I am here with senior trial lawyer,  
3 Gilles Dutertre and trial lawyer, Lucio Garcia representing the Prosecution this  
4 morning.  
5 PRESIDING JUDGE MINDUA: [9:34:52](Interpretation) Thank you very  
6 much, Madam Prosecutor.  
7 Now I turn to the Defence.  
8 Ms Taylor.  
9 MR ROWSE: [9:34:57] Good morning, your Honours. My name is  
10 Michael Rowse. I'm appearing on behalf of the Defence with the leave of the  
11 Chamber granted by email on 24 September.  
12 I'm joined in court with Ms Melinda Taylor and Kirsty Sutherland. Thank  
13 you.  
14 PRESIDING JUDGE MINDUA: [9:35:28](Interpretation) Thank you very  
15 much. Thank you.  
16 Now let me turn to the Legal Representative for Victims.  
17 Mr Nsita.  
18 MR LUVENGIKA: [9:35:36](Interpretation) Good morning, your Honours.  
19 The Legal Representative of Victims team is comprised this morning by  
20 Madam Claire Laplace and myself, Mr Fidel Nsita Luvengika. Thank you.  
21 PRESIDING JUDGE MINDUA: [9:35:58](Interpretation) Thank you very  
22 much, Mr Nsita.  
23 Today, we shall be hearing the testimony of witness -- of the tenth witness for  
24 the Prosecution.  
25 But before so doing, we would like to impart some sad news;

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1 the announcement of the death of Esther Obat, from the Court Management  
2 Section died last Sunday in the prime of her life. And, on this very sad  
3 occasion, of course, the judges of the Chamber are with me in presenting their  
4 most sincere condolences to the family of the deceased, to her colleagues  
5 present here today and to her colleagues elsewhere in the Court, and to  
6 the entire Court, and to all her friends and acquaintances. It is a very difficult  
7 period for us, but we shall carry on sitting, as she would have liked us to do.

8 Now, let me turn to the witness.

9 Good morning, Mr Witness.

10 Do you hear me?

11 WITNESS: MLI-OTP-P-0064

12 (The witness speaks English)

13 THE WITNESS: [9:38:04] Yes.

14 PRESIDING JUDGE MINDUA: [9:38:05] (Interpretation)(Microphone not  
15 activated)

16 THE INTERPRETER: Microphone, please, Judge.

17 PRESIDING JUDGE MINDUA: [9:38:15](Interpretation) On behalf of the  
18 Chamber, I would like to welcome you. You shall be testifying with a view to  
19 helping the Chamber to shed light on the case of  
20 The Prosecutor v. Mr Al Hassan.

21 We shall now administer your solemn undertaking according to Rule 66(1) of  
22 the Rules of Procedure and Evidence.

23 Mr Witness, before you you have a sheet of paper. Can you see this document  
24 on your table?

25 THE WITNESS: [9:39:00] Yes.

1 PRESIDING JUDGE MINDUA: [9:39:05](Interpretation) Very well.

2 Now, this is the solemn undertaking by which you shall undertake to speak  
3 the truth, and I would like you to read it out loud please, so that we can hear  
4 what you're saying clearly.

5 Please, go ahead.

6 THE WITNESS: [9:39:26] I solemnly declare that I will speak the truth,  
7 the whole truth and nothing but the truth.

8 PRESIDING JUDGE MINDUA: [9:39:37](Interpretation) Thank you very  
9 much, Mr Witness.

10 Now, you are under oath, and the VWS, and legal -- and Office of the  
11 Prosecutor have already told you exactly what this means.

12 So I have a few practical pieces of advice to give you. You should bear in  
13 mind that everything that is said in this courtroom is transcribed by the court  
14 reporters and simultaneously interpreted in a number of languages by  
15 the interpreters; so it is important to speak clearly and slowly.

16 Only start to speak please, when the person who is putting a question to you  
17 has finished putting the question to you or has finished speaking. Count to  
18 three in your head before answering. This pause is essential to enable your  
19 statement to be properly taken down. Of course, if you do have any questions,  
20 please raise your hand to indicate that you would like to take the floor.

21 Have you understood what I've just said?

22 THE WITNESS: [9:41:26] Yes.

23 PRESIDING JUDGE MINDUA: [9:41:34](Interpretation) Very well. We shall  
24 now hear your testimony. You will be questioned, first of all, by the Office of  
25 the Prosecutor and subsequently by the Defence, the cross-examination of

1 the Defence, and, of course, the legal representatives of the victims and maybe  
2 the Bench might put questions to you as well.

3 Madam Prosecutor, this witness is not under protective measures, so we can  
4 reveal his identity whenever addressing him -- Mr Lars Bromley. So you shall  
5 be taking his testimony under 68(3) of the Rules of Procedure. Is that correct?  
6 Very well, the witness is all yours.

7 MS MARTIN SALGADO: [9:42:44] Thank you, your Honours. And before  
8 addressing the witness, I would like to express the Prosecution's condolences  
9 for the untimely passing of our esteemed colleague.

10 PRESIDING JUDGE MINDUA: [9:43:07](Interpretation) Thank you very  
11 much, Madam Prosecutor.

12 QUESTIONED BY MS MARTIN SALGADO:

13 Q. [9:43:14] Good morning, Mr Witness.

14 A. [9:43:16] Good morning.

15 Q. [9:43:19] Could you please state your name for the record.

16 A. [9:43:24] My name is Lars Bromley.

17 Q. [9:43:31] And your date of birth, please.

18 A. [9:43:35] My date of birth is December 23, 1974.

19 Q. [9:43:44] Mr Bromley, my name is Elena Martin Salgado and I will be  
20 asking you questions on behalf of the Prosecution.

21 And if, at any point, any of my questions is not clear to you, please say so and I  
22 will clarify.

23 I am going to first ask you some questions briefly, about your background. I  
24 will then ask you about your reports, \* the methodology and conclusions for  
25 them and the material provided in relation to them.

1 Mr Witness, the Chamber has decided that you testify as an expert. I will  
2 therefore not go through your qualifications in great detail. I will only ask  
3 you a few questions about them.

4 MS MARTIN SALGADO: [9:45:00]

5 And for the record, your Honours, the witness's CV is in MLI-OTP-0017-0046;  
6 that's tab 25 of the court binder, and it's at page 0065. But I do not need it  
7 shown on the screen at this point.

8 Mr Witness, what is your current title -- job title, excuse me?

9 A. [9:45:28] My current title is specialist.

10 Q. [9:45:31] And who do you work for?

11 A. [9:45:35] I work for the United Nations Institute for Training and  
12 Research Operational Satellite Applications Programme.

13 Q. [9:45:48] Please briefly describe what you do in that position?

14 A. [9:45:56] I am a satellite imagery analyst and an analyst of geospatial data,  
15 which means data that essentially can be mapped. I also manage a team of  
16 people who do similar work as I.

17 Q. [9:46:15] And how long have you been doing those things for?

18 A. [9:46:23] For my current employers, I've been with them for about  
19 10 years. With these general technologies, I've been using them for over  
20 20 years.

21 Q. [9:46:39] And when you refer to these general technologies, does that  
22 mean specialised tools that you use?

23 A. [9:46:50] Correct. So that is the satellite imagery, the related data that  
24 goes with it, and then the software to process and analyse the imagery and  
25 data.

1 Q. [9:47:08] Mr Witness, you prepared two reports for the ICC analysing  
2 satellite imagery for Timbuktu; is that correct?

3 A. [9:47:25] That is correct.

4 Q. [9:47:26] I will now ask you some questions in connection with the first  
5 report, which is dated 13 July 2014.

6 Do you remember that the Prosecution first asked you to establish  
7 the availability of satellite images for indicated structures in Timbuktu for  
8 certain target dates?

9 A. [9:47:56] Yes.

10 MS MARTIN SALGADO: [9:47:58] Ms Court officer, please show

11 MLI-OTP-0017-0046. It can be shown publicly. It is in tab 25.

12 Now, for technical reasons, page 0017-0047 appears before 0046, but that is  
13 the name of the ERN.

14 THE COURT OFFICER: [9:49:06](Interpretation) The document can be seen  
15 on evidence 1.

16 MS MARTIN SALGADO: [9:49:14] Thank you.

17 Q. [9:49:16] Mr Witness, do you see the letter of instructions of  
18 27 November 2013 asking you to establish the availability of satellite images?  
19 Do you see it on your screen?

20 A. [9:49:35] No, I don't.

21 Q. [9:49:36] Could we make sure the witness is in evidence channel 1.

22 Mr Witness, do you see next to your microphone there's a button that says  
23 "evidence 1"?

24 A. [9:49:58] Ah, yes. Now I see the letter.

25 Q. [9:50:00] Do you? Oh, perfect.

1 Did you find available images for Timbuktu for before and after the given  
2 dates?

3 A. [9:50:17] Yes, I did.

4 MS MARTIN SALGADO: [9:50:22] Ms Court officer, can we please turn to  
5 the third page of the document, which happens to be 0017-0046.

6 Q. [9:50:41] Mr Witness, do you recognise this subsequent letter of  
7 instructions of 5 March 2014?

8 A. [9:50:53] Yes.

9 Q. [9:50:57] And this letter asked you, among other things - if we can scroll  
10 down a bit, please - to conduct satellite imagery analysis for certain satellite  
11 images taken in the area of Timbuktu by comparing images of four  
12 structure -- of nine structures, I'm sorry, before and after the target dates.

13 Is that correct?

14 A. [9:51:31] Yes.

15 MS MARTIN SALGADO: [9:51:35] And, your Honours, the letter indicates  
16 that annex 1 contains the relevant dates for each site, relevant target dates and  
17 that annex, which can be found at 0017-0050 shows, for instance, 30 June 2012  
18 and 1 July as target dates.

19 Q. [9:51:58] My next question to you, Mr Witness, is that, according to  
20 the letter, GPS coordinates were given to you for the various structures to be  
21 examined. But if we can scroll down to footnote 2, the letter in that footnote,  
22 the letter refers to a chart in annex 2, to the letter, containing a summary index  
23 of screen captures from Google Earth Pro where the relevant nine monuments  
24 identified -- are identified with the help of a blue circle inserted by the OTP.  
25 Do you see that?



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1 A. [9:52:53] Yes.

2 Q. [9:52:54] Did you receive those Google Earth Pro screen captures with  
3 a circle inserted by the OTP?

4 A. [9:53:01] Yes.

5 MS MARTIN SALGADO: [9:53:06] Ms Court officer, please show  
6 MLI-OTP-0012-1005. It is in tab 14 of your binder. Yes, sorry, yes, I see.

7 Q. [9:53:45] Is this one of the Google Earth Pro screen captures that you  
8 received?

9 A. [9:53:54] Yes.

10 MS MARTIN SALGADO: [9:54:02] For the record, annex 2 to the letter of  
11 instructions can be found at page 0017-0057 of that tab, tab 25; and  
12 the Google Earth screen captures that are referred to by ERN in that annex are  
13 in tab 1 to 18 of your court binder, with ERNs MLI-OTP-0012-0992 up to and  
14 including MLI-OTP-0012-1009.

15 Q. [9:54:54] I would now like to turn to the first report itself.

16 Ms Court officer, please show MLI-OTP-0017-0029. It can be shown publicly.  
17 And, your Honours, it is in tab 24.

18 The title of the report is:

19 "Analysis of Satellite Imagery for Timbuktu, Republic of Mali".

20 "Prepared for the International Criminal Court as Input to the Investigation on  
21 the Situation in the Republic of Mali (ICC-01/12)".

22 And it is dated, "13 July 2014".

23 Mr Witness, is this your report?

24 A. [9:56:06] Yes.

25 Q. [9:56:14] I would like us to move briefly to the methodology for your

1 report.

2 And if we can, Ms Court officer, turn to page 0017-0031 of the report. And if  
3 we can go to the bottom of that page.

4 Let me just briefly begin with the satellite images that you analysed in your  
5 first report just for now. You used satellite images from multiple dates  
6 spanning 18 June 2012 to 25 December 2012. Is that correct?

7 A. [9:57:13] Yes.

8 Q. [9:57:14] And I will ask you a bit more about the provision of those  
9 images later. But for now, and on the subject of your methodology, I  
10 understand you have prepared a visual presentation in relation to figure 6 in  
11 this report recording how the image analysis was conducted for that figure.

12 And the figure is for the mausolea: "\* Cheick Sidi El Mokhtar ben Sidi  
13 Mouhammad Ben Cheikh Al Kabir".

14 Have you prepared that presentation?

15 A. [9:58:04] Yes.

16 Q. [9:58:04] And with your Honours' leave, please show it now.

17 A. [9:58:13] I will need my laptop to appear on the screens.

18 MS MARTIN SALGADO: [9:58:20] I believe that should be on evidence  
19 channel 2.

20 PRESIDING JUDGE MINDUA: [9:58:27](Interpretation) Mr Witness, please  
21 go ahead. Please, you can use your computer.

22 THE WITNESS: [9:58:38] Thank you.

23 So, what you are seeing on the screen right now is a piece of software called  
24 a geographic information system. This particular GIS software is called  
25 ArcGIS Pro. It is slightly different than what I used six years ago for this

1 analysis, but the functions are the same and the purpose is the same.  
2 This kind of software has been around for decades. It's very commonly used  
3 in many sectors -- forestry, oil and gas, national mapping et cetera, et cetera.  
4 You can think of it simply as a word processor but for making maps and  
5 analysing geospatial data. Geospatial data includes satellite imagery and any  
6 other data that has a geographic component. So, for example, the address of  
7 your house or of this court could also be geographic data.  
8 It can be quite complicated to use, but for these purposes is not so difficult.  
9 What you see on the left-hand side over here are multiple layers of data.  
10 These layers include two satellite images and then the data depicting  
11 the location of the monuments. I can turn on and off the layers, and so what  
12 I've just done is turn on one of the images showing Timbuktu. This is  
13 the image from 18 June 2012, collected by the WorldView-2 satellite. I can  
14 zoom in and see much greater detail in the satellite image. You can see cars  
15 on the road, trees, buildings et cetera, et cetera.  
16 If I zoom back out, I can see the entire city again. And now I'm turning on  
17 the layer that shows the locations of the monuments that I was given by  
18 the ICC in the letter. This is what we call vector data. This is vector point  
19 data, meaning it just describes a single location on the surface of the earth. If  
20 you've ever heard of latitude and longitude, that's what this is basically  
21 showing.  
22 These vector data points also have other information associated with them, text  
23 information. And so, for example, I've set this up so some of the text  
24 information appears if I tell the computer to make the labels (Overlapping  
25 speakers)

1 THE COURT OFFICER: [10:02:11] (Overlapping speakers) Excuse me to  
2 interrupt, Mr Witness. I would just like to make sure that what's shown by  
3 the witness can be published. Yes?

4 THE WITNESS: [10:02:19] Yes, this is essentially the material from \*report  
5 number 1 (see ICC-01/12-01/18-T-031-CONF-FRA ET, p. 11, l. 20-21) where it  
6 was interpreted.

7 THE COURT OFFICER: [10:02:24] Thank you very much.

8 THE WITNESS: [10:02:27] -- report 1.

9 THE COURT OFFICER: [10:02:28] Thank you.

10 THE WITNESS: [10:02:29] So if we turn on the 18 June satellite image and we  
11 have our vector data with the locations displayed, we can now zoom down to  
12 the location of figure 6, the monument indicated by the Prosecution.  
13 And the analysis process is honestly quite simple in these situations. So what  
14 you see in the centre here are two structures. I know that these structures are  
15 above ground because they're casting a shadow on the left and bottom side,  
16 primarily on the left side.  
17 The other image I have loaded here is 15 July 2012, and keep your eye on  
18 the two structures that I've just indicated here. And so if we look at this  
19 location as of 15 July 2012, you can see that the structures have disappeared.  
20 You no longer see the dark shadow on the left indicating that they're above  
21 ground and casting a shadow.  
22 Instead, the structures have been replaced by essentially debris is what I would  
23 call this. There is no longer a shadow being cast. The structures are no  
24 longer sticking up above ground, and, in this case, I would mark these  
25 structures as destroyed.

1 So, again, this is the before. This is the after.

2 And this process was repeated for all the locations provided to me, sometimes  
3 using different images but, as indicated in the report, you simply do  
4 a comparison of the before and the after, and, you note the disappearance of  
5 the structure, sometimes the appearance of debris, and other factors like that.

6 MS MARTIN SALGADO: [10:04:59]

7 Q. [10:04:59] Thank you, Mr Witness.

8 If we can return to channel evidence 1.

9 And Ms Court officer, if you could please turn to page 0017-0034 of the report,  
10 and we can zoom in a little, yeah. And we see at:

11 "Table 2: Summary of Imagery Analysis Results".

12 Could you please briefly describe what were your results and conclusions?

13 A. [10:05:46] Yes. So, after reviewing all the structures using the imagery  
14 indicated previously, all the structures were clearly removed using that same  
15 method that I just showed you on the screen. One exception would be  
16 the final one. If we could scroll down a little bit, simply because that  
17 monument was a thin, flat and vertical monument and with a satellite, you're  
18 of course looking at it from above and it's thin enough that you don't  
19 necessarily see it directly, but you see the shadow that its cast. And then after,  
20 it was destroyed. You see pieces of it laying on the ground.

21 Q. [10:06:56] And on the basis of those results, Mr Witness, what was your  
22 conclusion?

23 A. [10:07:05] That all the structures had been removed.

24 Q. [10:07:11] Mr Witness, in respect of this first report, and, I'm now going to  
25 move on, you made a couple of corrections during witness preparation; is that

1 correct?

2 A. [10:07:24] For the first report we made a clarification on the imagery used  
3 for that Al Farouk monument.

4 Q. [10:07:41] And if we can turn to page 0017-0031.

5 And if we can go -- scroll down, please. And I quote from the bottom, it says:

6 "The main satellite images used in the analysis are portions of six separate

7 images acquired primarily by the WorldView-2 satellite, with one image

8 acquired by the WorldView-1 satellite, on multiple dates spanning 18 June 2012

9 to 25 December 2012."

10 Mr Witness, you've mentioned a clarification. Could you state that now?

11 A. [10:08:34] So, for foot -- as seen in footnote 2, since I could not see

12 the Al Farouk monument directly in the image because it was a vertical

13 structure and thin, I was assessing it based on the shadow that it cast. In

14 order to be more certain about it, I assessed multiple images, but only two of

15 those were inputted into table 1. Additional images that we actually

16 purchased, included 15 October and 21 October 2012, and I also used

17 Google Earth to look at other images and understand how the shadow was

18 being cast to better understand what the monument looked like before

19 destruction and after.

20 Q. [10:09:41] And Mr Witness, those two images that you mentioned,

21 15 October and 21 October 2012, what satellite took them?

22 A. [10:09:54] That would have been the WorldView-2 satellite.

23 MS MARTIN SALGADO: [10:10:01] Ms Court officer, could you please turn

24 to page 0017-0035, and if we can zoom into the bottom of the page.

25 Q. [10:10:27] Did you make a correction to the text under that figure?

1 A. [10:10:36] I believe the correction to figure 2 -- or, figure 1 was done for  
2 report 2, not for report 1.

3 Q. [10:10:51] Mr Witness, can you compare where it says under figure 1,  
4 where it says:

5 "[...] this structure is no longer visible and has likely been removed [...]" to, if  
6 you move --

7 MS MARTIN SALGADO: [10:11:14] Ms Court officer, if we can show  
8 the table of results again, which is at page 0017-0034, and if you zoom in, and  
9 for figure 1, the result appears as "Structure clearly removed".

10 Can you clarify what was your conclusion for that?

11 A. [10:11:50] Yes, so it would have -- I would have said the structure was,  
12 was clearly removed. There's a certain style of writing with image analysis  
13 where we're often using the word likely and possible. And, yeah, in the year  
14 since I've done this report I've learned to be a little stricter in how I write.

15 Q. [10:12:23] With these modifications, Mr Witness, is your report  
16 MLI-OTP-0017-0029 correct?

17 A. [10:12:36] Yes.

18 Q. [10:12:38] Do you object to its submission into evidence?

19 A. [10:12:43] No.

20 MS MARTIN SALGADO: [10:12:50] Your Honours, I now have to go through  
21 a technical matter in some detail, and that is the provision of the satellite  
22 images. The reason I have to do so is because the CDs containing the satellite  
23 images were not -- for the first report, were not in the Rule 68(3) application.  
24 And also because in the original version or format, the satellite images  
25 themselves cannot appear in Ringtail. And this is why we disclosed CDs

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1 rather than just a screenshot.

2 So I would like the witness to identify images in these CDs to clarify the record,  
3 and I will try to be as quick as I can in doing so.

4 Q. [10:13:39] Mr Witness, did you provide to the Prosecution -- excuse me?

5 PRESIDING JUDGE MINDUA: [10:13:51](Interpretation) Could you please  
6 have a break so that we can discuss this. But I authorise --

7 MS MARTIN SALGADO: [10:13:53](Overlapping speakers) I'm sorry, your  
8 Honour, yes.

9 PRESIDING JUDGE MINDUA: [10:13:53](Interpretation) -- you to continue.  
10 Thank you.

11 MS MARTIN SALGADO: [10:14:05]

12 Q. [10:14:07] Did you provide to the Prosecution the electronic version of the  
13 satellite images in connection with the first report?

14 A. [10:14:15] Yes.

15 Q. [10:14:16] Did you provide them in TIF format?

16 A. [10:14:21] Yes.

17 Q. [10:14:23] Did you also provide a lower resolution or browse version of  
18 the satellite images in TIFF in a JPEG format?

19 A. [10:14:37] Yes, that is how the imagery is delivered to us from the vendor.

20 Q. [10:14:41] So for every satellite image in TIFF, you also provided a JPEG  
21 image?

22 A. [10:14:49] Correct.

23 Q. [10:14:54] Do you recall providing satellite images to the Prosecution by  
24 sending them in CDs?

25 A. [10:15:03] Yes, I remember it was a somewhat difficult process.



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1 The images tend to be very large and downloading them can be a challenge.  
2 And there were different attempts and eventually I did make a CD or DVDs for,  
3 for the Court.

4 MS MARTIN SALGADO: [10:15:29] Ms Court officer, please show  
5 MLI-OTP-0017-0071.

6 It is in tab 27 of your binder, your Honours, and it can be shown publicly.

7 Q. [10:16:17] Mr Witness, do you recognise the handwriting on this CD?

8 A. [10:16:21] Yes, I believe that is my handwriting.

9 Q. [10:16:23] And the CD says -- the CD says "2 of 2". Does that mean there  
10 was another CD?

11 A. [10:16:35] I -- yeah, it would indicate there's a 1 of 2.

12 Q. [10:16:41] Were these CDs provided to the ICC?

13 A. [10:16:47] Yes.

14 Q. [10:16:54] Mr Witness, I am going to ask you to look at a JPEG image  
15 extracted from CD 0017-0071 and its accompanying metadata.

16 And, Ms Court officer, I'm now going to ask my colleague to take over in  
17 evidence channel 1 and to show MLI-OTP-0017-0073, which is in your tab 28,  
18 and I'm going to ask him to show this document together with the metadata  
19 from eCourt. And because we're showing metadata, I ask that it not be  
20 broadcast to the public.

21 THE COURT OFFICER: [10:17:40] Thank you. I'm going to ask now my  
22 colleague from the audio-visual booth to give the floor to the OTP bench on  
23 the right side and please not show what's -- the metadata publicly. Thank  
24 you.

25 MS MARTIN SALGADO: [10:18:14] And as your Honours can see from

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1 the metadata field source media information, this comes from the CD I just  
2 mentioned, which is 0017-0071.

3 Could we zoom in a bit.

4 Q. [10:18:30] Mr Witness, can you see the metadata field, "OTP registered  
5 path"?

6 A. [10:18:41] Yes.

7 Q. [10:18:45] And looking at the image and looking at that field, what is  
8 the date of the image?

9 A. [10:18:50] That image is 18 June 2012.

10 Q. [10:18:55] Did you provide this JPEG image and the corresponding  
11 satellite image in TIF format to the Prosecution?

12 A. [10:19:08] Yes.

13 MS MARTIN SALGADO: [10:19:10] Your Honours, that CD, 0017-0071,  
14 contains three other satellite images. But with your leave, and in the interest  
15 of time, I will simply indicate for clarity of the record what these images are,  
16 rather than go through the same exercise.

17 PRESIDING JUDGE MINDUA: [10:19:39](Interpretation) Go ahead, Madam  
18 Prosecutor.

19 MS MARTIN SALGADO: [10:19:44]

20 Q. [10:19:47] (Overlapping speakers) They are dated 15 July 2012,  
21 15 October 2012 and 21 October 2012. And the extracted JPEG images of these  
22 satellite images can be found under 0017-0074, which is in your tab 29,  
23 0017-0075, which is in tab 30, and 0017-0076, which is in tab 31.  
24 You mentioned, Mr Witness, that you also may have provided images by way  
25 of downloaded link; is that correct?

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WITNESS: MLI-OTP-P-0064

(Open Session)

ICC-01/12-01/18

1 A. [10:20:41] Yes.

2 MS MARTIN SALGADO: [10:21:14] We need to show, Ms Court officer,

3 MLI-OTP-0015-0045. And it can be shown publicly and it is in tab 19.

4 Q. [10:21:40] If you look at that CD cover, Mr Witness, it's in evidence 1,

5 yeah, it contains four dates: 26 October 2012, 29 October 2012,

6 22 December 2012, and 25 December 2012.

7 Are those the dates of some of the images that you provided -- of the satellite

8 images that you provided to the Prosecution?

9 A. [10:22:14] Yes.

10 Q. [10:22:16] And I am again going to ask you to look at the JPEG image

11 extracted from this CD and its accompanying metadata.

12 Ms Court officer, can my colleague have evidence channel 1 again, and I'm

13 going to ask him to show 0015-0050, it is in your tab 20. And because we're

14 showing metadata, please don't broadcast.

15 THE COURT OFFICER: [10:23:02] The OTP has the floor. You can show

16 him.

17 MS MARTIN SALGADO: [10:23:06] Thank you.

18 Q. [10:23:07] And again, your Honours, you can see from the source media

19 information that this image comes from CD 0015-0045.

20 And, again, Mr Witness, do you see the OTP registered path metadata field?

21 A. [10:23:33] Yes.

22 Q. [10:23:33] And looking at it and at the image, what is the date of this

23 image?

24 A. [10:23:40] 26 October 2012.

25 Q. [10:23:43] And did you provide this JPEG image and the corresponding

1 satellite image in TIFF to the Prosecution?

2 A. [10:23:53] Yes.

3 Q. [10:23:55] And can you maybe explain why the image is in black and  
4 white?

5 A. [10:24:02] This particular image comes from the WorldView-1 satellite,  
6 which is a panchromatic black and white imager only. It does not have  
7 a colour mode; so this image appears as black and white versus the other  
8 images, which are in colour because they were collected by a different satellite  
9 with different capabilities.

10 Q. [10:24:25] And what satellite was the other satellite that collected in  
11 colour?

12 A. [10:24:28] WorldView-2.

13 Q. [10:24:29] Thank you.

14 Your Honours, again, this CD also contains three other satellite images, and if  
15 I can be given leave as before to read them on to the record rather than have  
16 the witness go through them.

17 PRESIDING JUDGE MINDUA: [10:24:57](Interpretation) Yes (Overlapping  
18 speakers)

19 MS MARTIN SALGADO: [10:25:01] I'm grateful (Overlapping speakers)

20 PRESIDING JUDGE MINDUA: [10:24:59](Interpretation) please do.

21 MS MARTIN SALGADO: [10:25:00] The satellite images contained in that  
22 CD, in addition to the one we saw, are dated 29 October 2012,  
23 22 December 2012 and 25 December 2012. And the extracted JPEG images can  
24 be found in 0015-0051, that's at your tab 21; 0015-0052 and that is at your tab 22;  
25 and 0015-0053 at your tab 23 respectively.

1 THE COURT OFFICER: [10:25:40] Will it be possible for the Prosecution to  
2 slow down when giving the reference number. Thank you. For  
3 the interpreters.

4 MS MARTIN SALGADO: [10:25:51]

5 Q. [10:25:52] And finally on this subject of the satellite images with the first  
6 report, do you recall that in witness preparation you were shown JPEG images  
7 that were duplicates to the other images you had been shown?

8 A. [10:26:09] Yes.

9 MS MARTIN SALGADO: [10:26:12] And, your Honours, for the record, those  
10 duplicate files are in \* CD MLI-OTP-0017-0070, in tab 26. And because they  
11 are duplicates, you will not find JPEG images corresponding to that CD in your  
12 binder.

13 Q. [10:26:42] Mr Witness, I will now ask you questions in relation to your  
14 second report, dated 3 November 2014.

15 Did you receive a letter of instructions prior to the date of that report from  
16 the Prosecution?

17 A. [10:27:04] Yes.

18 Q. [10:27:11] And it asked you, among other things, to conduct satellite  
19 imagery analysis for certain satellite images of the area or taken in the area of  
20 Timbuktu, again by comparing images, this time of 11 structures, before and  
21 after the relevant target dates. Is that correct?

22 A. [10:27:40] Yes.

23 Q. [10:27:44] And these target dates were set out in an annex to the letter of  
24 instruction?

25 A. [10:27:54] Yes.

1 Q. [10:27:56] And you received Google Earth Pro screen captures where  
2 the locations of interest were identified with the help of a circle inserted by  
3 the OTP?

4 A. [10:28:11] Yes.

5 MS MARTIN SALGADO: [10:28:16] For the record, the letter of instructions  
6 and its annexes can be found in 0021-0333 in your tab 52.

7 Ms Court officer, could you please show 0021-0006. It can be shown publicly.  
8 And, your Honours, it is in tab 48.

9 THE COURT OFFICER: [10:29:05] It's now displayed on the screen, evidence  
10 channel 1.

11 MS MARTIN SALGADO:

12 Q. [10:29:12] The title of the report is "Analysis of Satellite Imagery for  
13 Timbuktu and Kabara, Republic of Mali". It is dated, "3 November 2014".  
14 Is this your report?

15 A. [10:29:27] Yes.

16 Q. [10:29:31] In terms of methodology, did you use the same methodology  
17 for this report as for the first report?

18 A. [10:29:43] Yes.

19 MS MARTIN SALGADO: [10:29:49] Ms Court officer, could we please turn to  
20 0021-0012. And there (Microphone not activated) we see a table, "Summary of  
21 Imagery Analysis Results".

22 Q. [10:30:12] Mr Witness, please briefly describe your results and conclusion.

23 A. [10:30:20] So, yes, for these structures, most of them were clearly removed.  
24 Figure 4 was obscured, but I did determine that it was removed. Same with  
25 figure 8. Figure 9 was inconclusive and unable to verify the damage. Figure

1 10 indicated the structure was partially removed. And figure 11 was again,  
2 inconclusive and unable to verify damage.

3 Q. [10:31:08] And, Mr Witness, during witness preparation, if I can move on  
4 from there, did you make one correction to the report?

5 A. [10:31:20] Yes.

6 MS MARTIN SALGADO: [10:31:22] Ms Court officer, could we turn to  
7 0021-0013.

8 And, Mr Witness, you see there, "Figure 1: Mausolee Sidi  
9 Mouhammed Boukkou". And if we can scroll down to the text below, did you  
10 make a correction to that, Mr Witness?

11 A. [10:31:55] Yes.

12 Q. [10:31:58] What was the correction?

13 A. [10:32:00] The -- essentially the phrase "identified in the ICC Google Earth  
14 screen capture\* MLI-OTP-0017-0089" was included in there erroneously. It  
15 should be considered a typo. The letter of instruction included coordinates,  
16 which were the location shown in figure 1. The Google Earth screen capture  
17 showed a different area. In addition to the coordinates, there were two other  
18 clues in the letter of instruction pointing us to the correct location.

19 Q. [10:32:39] Did you also mention that the coordinates that were given to  
20 you were formatted differently?

21 A. [10:32:49] Yes. They were formatted both differently and incorrectly in  
22 the letter of inquire -- letter of instruction. They were in what's called UTM  
23 coordinates as opposed to latitude and longitude. But we had to edit them  
24 slightly to make them correct.

25 Q. [10:33:19] And is this issue of formatting of coordinates something you

1 encounter regularly?

2 A. [10:33:29] Yes, with nontechnical partners it tends to be common.

3 Q. [10:33:35] And were other coordinates provided to you in the letter of  
4 instruction also in UTM format?

5 A. [10:33:44] Yes.

6 Q. [10:33:48] And did you change the formatting --

7 A. [10:33:51] Yes.

8 Q. [10:33:52] -- for those coordinates?

9 A. [10:33:53] We had to slightly change the formatting for the additional  
10 coordinates to make them valid.

11 Q. [10:34:05] Mr Witness, with the modification or the correction that you've  
12 just stated, is your report MLI-OTP-0021-006 -- 0006, sorry, correct -- that is,  
13 dated 3 November 2014?

14 A. [10:34:26] Yes.

15 Q. [10:34:29] Do you object to its admission into evidence?

16 A. [10:34:35] No.

17 Q. [10:34:41] And my final topic, did you provide the Prosecution with an  
18 electronic version of satellite images for the second report?

19 A. [10:34:51] Yes.

20 MS MARTIN SALGADO: [10:34:57] Ms Court officer, before asking  
21 the witness the next question, I request that you show in succession three  
22 documents. \* They can now be shown publicly. Please show 0021-0041, that's  
23 at your tab 49; 0021-0042, which is at your tab 50; and 0021-0043 in tab 51.

24 THE COURT OFFICER: [10:35:56] The three documents have been shown.

25 MS MARTIN SALGADO: [10:36:01] Thank you.



1 Q. [10:36:03] Mr Witness, do you recognise the handwriting on those CD  
2 covers?

3 A. [10:36:08] Yes, I believe that's my handwriting.

4 Q. [10:36:12] These CDs were provided to the ICC?

5 A. [10:36:16] Yes.

6 MS MARTIN SALGADO: [10:36:20] Your Honours ...

7 (Counsel confer)

8 MS MARTIN SALGADO: [10:36:39] Apologies for that.

9 Your Honours, the images are not extracted from these CDs, among other  
10 reasons, due to their size. But we have prepared a document on the basis of  
11 the witness preparation log, which details the CDs' ERNs and the folders and  
12 the subfolders within which the images can be found.

13 And we suggest that this document could be helpful to your Honours -- yes,  
14 and to parties and participants in locating the images within the CDs and it  
15 would also save having to show the witness the images. And I have  
16 the document - it's only been ERN-ed recently - and its MLI-OTP-0078-9431  
17 and you should be receiving a hard copy, if you haven't already.

18 And we shared this document with the Defence and they very helpfully agreed  
19 that we could show it to the witness to save time, provided, among other  
20 things, that we note, because, you know -- that the Defence reserves its right to  
21 raise any objections to the document until the time of image submission. And  
22 this is because we've prepared it on the basis of the witness preparation log  
23 and the Defence would like to verify.

24 So with your leave, your Honour, if I could show it to the witness?

25 PRESIDING JUDGE MINDUA: [10:38:30](Interpretation) Yes, please go

1 ahead, Madam Prosecutor. And that way, we don't waste any time. And  
2 the Defence has accepted.

3 MS MARTIN SALGADO: [10:38:45] And that is MLI-OTP-0078-9431.

4 Q. [10:38:59] Mr Witness, before you look at the document -- or do you recall  
5 that during witness preparation, I read out folders and subfolders of these CDs  
6 and within which the JPEG images of the satellite images could be found?

7 A. [10:39:17] Yes.

8 Q. [10:39:19] And do you recall being shown those JPEG images?

9 A. [10:39:25] Yes.

10 Q. [10:39:28] And you see the document that has been handed to you, and it  
11 contains the beginning and the end of the title of the JPEG files. And after  
12 you've done reviewing it, I have three questions for you on this document.

13 A. [10:40:10] Yes, these are the images we reviewed.

14 Q. [10:40:14] (Microphone not activated) So these images were indeed  
15 shown to you?

16 A. [10:40:19] Correct.

17 Q. [10:40:22] And did you confirm their date as reflected in the document?

18 A. [10:40:31] Yes.

19 Q. [10:40:31] And did you confirm that you provided these images to  
20 the ICC?

21 A. [10:40:38] Yes.

22 Q. [10:40:43] Thank you, Mr Witness.

23 MS MARTIN SALGADO: [10:40:45] Your Honour, that concludes my  
24 questioning.

25 PRESIDING JUDGE MINDUA: [10:40:54](Interpretation) Thank you very

1 much, Madam Prosecutor.

2 The Chamber is extremely grateful to you for your celerity.

3 So now, because we have the time, let us move on to the legal representatives  
4 for victims.

5 Mr Nsita, please, on 18 September 2020, you presented a request along -- that is,  
6 document 1053, filing 1053, with a view to seeking request or leave to question  
7 this witness.

8 Now, following on from the examination-in-chief from the part of the Office of  
9 the Prosecutor, do you maintain said request?

10 MR LUVENGIKA: [10:41:42](Interpretation) Thank you very much,  
11 Mr President, for allowing me to address the Court. After having followed  
12 very attentively the examination-in-chief and the responses furnished by  
13 the witness, the Legal Representatives for Victims do not have any questions to  
14 put to the witness. Thank you.

15 Thank you, Mr Witness.

16 PRESIDING JUDGE MINDUA: [10:42:04](Interpretation) Thank you very  
17 much, Mr Nsita, for your cooperation.

18 So, I have only now to turn to the Defence. For the cross-examination,  
19 the Chamber received an application on the part of the Defence for  
20 the cross-examination of this witness to be led by Mr Rowse.

21 Is that correct?

22 MR ROWSE: [10:42:34] That is correct, your Honour.

23 PRESIDING JUDGE MINDUA: [10:42:40](Interpretation) So, in accordance  
24 with the decision of the Chamber, you may question the witness on  
25 the scientific and technical aspects of this witness's testimony. The floor is all

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(Open Session)

ICC-01/12-01/18

1 yours.

2 MR ROWSE: [10:43:09] Thank you, your Honour.

3 As it's my first opportunity to take the floor after hearing the sad news about  
4 our colleague, Esther, permit me to extend condolences on behalf of the  
5 Defence to the friends and family.

6 Your Honour, we request that we take a break early. You may recall last  
7 week, there was a series of exchanges over the preparation session -- or, I'm  
8 sorry, not the preparation session, the presentation by the witness and we'd  
9 like to examine it just a little bit before commencing.

10 Additionally, my colleague is bringing the Defence binders down as we speak,  
11 so it may be an opportune moment to break.

12 PRESIDING JUDGE MINDUA: [10:44:02](Interpretation) Thank you very  
13 much, counsel.

14 The Chamber shall grant your request. Now, how much time would you like,  
15 because normally we do have half an hour for the break. It is approximately  
16 10.45 now. How much of a break would you like?

17 MR ROWSE: [10:44:22] Your Honour, it would be, I think best if we have  
18 a 45-minute break and carry to the -- so an additional 15 minutes to examine  
19 the presentation this morning. So from 11 till 11.30.

20 PRESIDING JUDGE MINDUA: [10:44:47](Interpretation) Very well. So we  
21 shall rise now until 11.30.

22 Court is suspended.

23 THE COURT USHER: [10:44:56] All rise.

24 (Recess taken at 10.44 a.m.)

25 (Upon resuming in open session at 11.33 a.m.)

1 THE COURT USHER: [11:33:50] All rise.

2 PRESIDING JUDGE MINDUA: [11:34:05](Interpretation) The Court is in  
3 session.

4 Mr Rowse, you have the floor for your cross-examination.

5 MR ROWSE: Thank you, Mr President.

6 QUESTIONED BY MR ROWSE:

7 Q. [11:34:20] Good morning Mr (Overlapping speakers)

8 PRESIDING JUDGE MINDUA: [11:34:24](Interpretation) Prosecutor?

9 MS MARTIN SALGADO: [11:34:26] I apologise, your Honour, but pursuant  
10 to paragraph 61 of the conduct of -- directions on the conduct of the  
11 proceedings, I just wanted to highlight two matters regarding the Defence  
12 documents in their list of material for P-0064.

13 First, is that the documents in \* tabs 15 to 21, with which we just received - and  
14 I'll give an ERN, MLI-D28-0004-0841, those as just provided - we see from them  
15 that they provide an average monthly of weather, but we cannot at this point  
16 comment on the reliability of the site where they come from.

17 And in addition, the individual information for the separate dates within those  
18 months are just provided by way of link, not by separate photocopy. And  
19 that is, as I mention, in tabs 15 to 21.

20 With respect to another document that can be found in tab 11, that is,  
21 MLI-D28-0004-0822. It is, from the face of it, a Defence internal work product  
22 and we don't think it can be shown to the witness for that reason.

23 So these are just two matters that I would just like to put on the record  
24 pursuant to that paragraph.

25 Thank you.

1 PRESIDING JUDGE MINDUA: [11:36:33](Interpretation) Thank you very  
2 much, Madam Prosecutor.

3 Defence, would you like to reply now or perhaps you will reply when you  
4 wish to use the documents and the Chamber will deliberate at the appropriate  
5 time?

6 MR ROWSE: [11:36:51] Thank you, Mr President. I think we'll defer  
7 the explanation until -- or until such time as the question arises or the issue  
8 becomes -- until we raise the issue with the witness.

9 PRESIDING JUDGE MINDUA: [11:37:09](Interpretation) Thank you.

10 MR ROWSE: [11:37:17] So let me begin again.

11 Q. [11:37:20] Good morning, Mr Witness.

12 A. [11:37:21] Good morning.

13 Q. [11:37:22] Just to give you a brief idea of where we're going. First, I shall  
14 be discussing a little bit of the background to your reports with you. Then,  
15 we'll get into your methodology. After that, we'll be discussing a little bit  
16 more of the nitty-gritty details of satellite imagery and we will conclude with  
17 some of the images in your actual reports.

18 So, I'd like to begin with your -- with the origins of these reports; we've already  
19 covered that a little bit this morning.

20 Were you asked to undertake any other satellite image acquisitions or analysis  
21 tests for the Prosecution in respect to Mali for the time period of 2012 to 2015?

22 A. [11:38:21] Not that I recall.

23 Q. [11:38:26] Thank you. You eventually obtained the images, and, if I'm  
24 not mistaken, UNOSAT provided these images to the ICC Prosecution free of  
25 charge. Is that correct?

1 A. [11:38:40] Yes, we purchased them, but we provided them to the ICC free  
2 of charge.

3 Q. [11:38:49] And the images come from a commercial provider. How  
4 much did the images cost?

5 A. [11:38:57] At the time I would estimate probably about \$500 per image.

6 Q. [11:39:16] So, I always have to be a bit careful with math, but if I'm not  
7 mistaken, there's 15 images across the two reports, seven in the first report, and  
8 this is at 0031, and eight in the latter report, and this is at 0011 of that report.  
9 So this is a total of, I believe, around 7,500 euros for the -- maybe I shouldn't  
10 ask you to do math as well.

11 A. [11:39:47] Please don't, but, yeah, it's -- you pay for satellite imagery in  
12 these circumstances. The actual billing is done per square kilometre; so  
13 the more square kilometres of imagery you buy, the more you pay.

14 Q. [11:40:08] And do you know why UNOSAT covered the cost?

15 A. [11:40:12] At the time we were funded to support international justice in  
16 general. We're a UN office that does satellite imagery analysis across the UN  
17 system. So, you know, colleagues are mapping floods in different areas,  
18 conflicts in different countries. It's, it's what we do.

19 Q. [11:40:38] And what we have is actually another person's work, right?  
20 You reviewed it, but you didn't actually do the initial examination?

21 A. [11:40:51] (Redacted)

22 Q. [11:40:56] Well, I wasn't going to name her name in public, but I was  
23 going to refer you to the passages.

24 A. [11:41:01] (Overlapping speakers) Yeah, she -- she's my junior colleague.  
25 She prepares and downloads and assembles things, and then I do the analysis.

1 Q. [11:41:13] And you're the last line of review before the material leaves  
2 your office; is that correct?

3 A. [11:41:20] Yes, my director may give it a read as well, but, yeah, I'm -- I'm  
4 the one doing it.

5 Q. [11:41:32] And so you and your assistant -- I'm going to say volunteered  
6 your time, but if I understood you correctly, this was paid for UNOSAT out of  
7 its -- out of the budget you referred to earlier?

8 A. [11:41:45] Correct.

9 Q. [11:41:46] Okay. And roughly, how much time did compiling these two  
10 reports take?

11 A. [11:41:53] These two reports were actually quite easy, because  
12 the locations were given to us, the Google Earth screen shots are very helpful  
13 for those things. I mean, we're always overworked and overbusy; so, you  
14 know, I would say it's probably a couple of days of analysis here and then  
15 laying out the report in a nice, easily digestible format is probably another, you  
16 know, week or so of work, because we want the product to look good.  
17 But, yeah, these -- these were relatively concise, because we were looking at  
18 individual structures which were identified for us.

19 Q. [11:42:42] Would you be willing to provide the Defence the same level of  
20 assistance and analysis time?

21 A. [11:42:51] Certainly.

22 Q. [11:42:52] And can you anticipate any barriers to UNOSAT providing  
23 the images and service free of charge for the Defence?

24 A. [11:43:01] We would make the effort. Nowadays, it's a different funding  
25 situation for us, but back in 2014, it was an easier situation.



1 Q. [11:43:14] Thank you.  
2 Now going to move on to your methodology. In your preparation session, it's  
3 indicated that you stated that you would change the language used in  
4 the report from things, such as, the structure is no longer visible and has been  
5 removed, to, quote, "likely" or quote, "possibly" removed. This is in Defence  
6 tab 10, MLI-OTP-0078-9415 at 9418, paragraph 14.  
7 I'll let you find it just in case you'd like to refer to it.  
8 Did you indicate that because the older way of expressing certainty gives an  
9 exaggerated sense of the conclusions?

10 A. [11:44:20] This is kind of an ongoing issue in dealing with evidence  
11 preparation. When we do image analysis, in many cases, yes, we're often  
12 using the words "likely" and "possible" and this is just kind of a reflection of  
13 our awareness that we're not there on the ground. And so it's just common,  
14 common terminology in the image analysis world, going back to World War I.  
15 But, yeah, I have learned over the years to try and tighten that language and at  
16 least define it a little bit better.

17 Q. [11:45:03] You've taken the words out of my mouth, but perhaps I can ask  
18 you one more question. To put it kind of more bluntly, it's because you have  
19 no scientific data about the things that you're looking at, typically?

20 A. [11:45:17] No, I mean, the -- for us, the imagery does constitute data. If  
21 you're looking at a structure and you see it's casting a shadow and then you see  
22 there's no shadow and the structure appears to be gone. However, could  
23 someone cover the structure with tarps and disguise it to a satellite? Yes, that  
24 is what many people do more in the intelligence and military world. But,  
25 yeah, that's where that language essentially comes from.

1 But, yes, I did not travel myself to these locations and, you know, poke my  
2 finger in the ground and see what was actually there.

3 Q. [11:46:12] (Overlapping speakers) Thank you. Perhaps, then, I  
4 misunderstood you this morning, but I understood this morning that after  
5 meeting with the OTP, that you said you would now -- and this is at real time,  
6 page 17, the real-time transcript, that you would now adopt stronger language.  
7 Did I misunderstand that?

8 A. [11:46:33] So the way I referred to it in, I think, yeah, table 2, it says  
9 "Structure clearly removed". That is how I would refer to it. Or I would at  
10 least, you know, make the two statements the same. I wouldn't use different  
11 statements between the two.

12 Q. [11:47:06] Perhaps we'll come back to that a little bit later.

13 Now, would you agree that in your work it's necessary to avoid confirmation  
14 bias?

15 A. [11:47:23] Yes.

16 Q. [11:47:28] And what measures did you take in preparing these reports to  
17 guard against it?

18 A. [11:47:35] I guess my own experience in analysing imagery. We, we  
19 have a saying, if we look long enough at the imagery, you can see whatever  
20 you want. So, yes, you try and keep your analysis concise and brief and  
21 focused.

22 Q. [11:48:02] Thank you.

23 Now, perhaps you don't need to look at this, but in your second report in  
24 footnote 1, you refer to an initial discussion - which I think we discussed this  
25 morning, or was discussed this morning - in November 2013.

1 And what I was interested to know was -- in that initial discussion with  
2 the Prosecution, was there any discussion in respect to raising alternative  
3 explanations for what you might ultimately find in the satellite imagery?

4 A. [11:48:40] No, none that I recall.

5 Q. [11:48:50] And you came back in January 2014 to indicate that some of the  
6 coordinates you received were, quote, "not precisely adjacent to  
7 the monuments" end quote.

8 How did you know that these were monuments?

9 A. [11:49:12] I think in those cases, so the structure is appearing in  
10 the middle of a cemetery. So a cemetery is something you can recognise in an  
11 image, and so if the coordinates provided were on the edge of the cemetery,  
12 but the structure was in the middle, then, yeah, that's where we would indicate  
13 that they, they may be, you know, 20 metres away. That's where  
14 the Google Earth screen shots were -- were mostly useful.

15 Q. [11:49:52] This is a little bit -- I'm drifting a little bit off topic, but I  
16 couldn't think of where else to raise it with you. So by looking -- by way of  
17 relating to that exchange where you indicated that the monuments were not  
18 precisely adjacent or that the coordinates that you'd been provided were not  
19 precisely adjacent --

20 MS MARTIN SALGADO: [11:50:17] Sorry, could the witness please be given  
21 the tab number and perhaps the ERN.

22 MR ROWSE: [11:50:23] So that is OTP -- thank you -- OTP tab 43, and this is  
23 MLI-OTP-0018-4923.

24 Q. [11:50:35] I will give you a moment to find that.

25 A. [11:50:41] Is that in the ... ?

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1 Q. [11:50:42] That's in the Prosecution's binder, which should be black,  
2 I believe.

3 THE COURT OFFICER: [11:50:52] On evidence channel 1, now.

4 THE WITNESS: [11:50:55] Okay. Thank you.

5 If you could repeat.

6 MR ROWSE: [11:51:06]

7 Q. [11:51:06] Yes, I believe I'm missing the specific site, but you wrote, or it  
8 was reported -- I'm sorry, I'll have to come back to you with that citation.

9 Perhaps I'll move on briefly and we'll bring that citation back later.

10 My question which related to that, and perhaps you -- probably a relatively  
11 easy question to answer, is you identified separate coordinates, but you didn't  
12 indicate those coordinates that were not precisely -- you didn't indicate them  
13 on the before or after photos in the report, did you?

14 A. [11:52:11] Not with -- the overview maps showing the whole city, for  
15 example, and the location would have shown the coordinates, but not with  
16 enough, enough detail in the map to see their, their precise location.

17 Q. [11:52:26] To see whether they were off by metres or hundreds of metres?

18 A. [11:52:30] Correct, yeah. The -- the drift in coordinates is common by  
19 a few metres, just depending on the GPS device used or the satellite imagery.  
20 But, again, you know, the screen shots were the helpful part here.

21 Q. [11:52:54] Thank you. So let me bring you back to methodology,  
22 I'm sorry for that little detour.

23 So you weren't, in preparing, in preparing these reports and assessing  
24 the imagery, you weren't asked, "Here's an image. Tell us if you see  
25 something interesting in it." Were you?

1 A. [11:53:18] No. That does happen in most of our other work where we're  
2 asked to review an entire image and locate, you know, whatever, whatever is  
3 of interest. In this particular case, no. \* Here we were told "well, you need to  
4 look in that place", and that's what we did.

5 Q. [11:53:36] And your office had actually previously been engaging with  
6 mapping monuments just prior to that?

7 A. [11:53:45] Yes. That was done by another colleague. I was not directly  
8 involved in that one. As the situation in the country was developing, we may  
9 get requests from across the UN system to, to produce analysis on it. But,  
10 yeah, that wasn't considered together with what we were asked to do by  
11 the -- the Office of the Prosecutor.

12 Q. [11:54:16] If I could perhaps just show you then, Defence tab 8, which is  
13 MLI-D28-0004-0805. It actually, the impression I get from here is that this is  
14 work with a university, actually.

15 So maybe you're discussing something different or is this the same?

16 A. [11:54:48] Yeah, so the data source came from, I believe this is  
17 the University of Cape Town in South Africa, and so they had some data on  
18 locations in Timbuktu and a -- I'm not sure if he was an intern or a contractor at  
19 the time, basically produced a map of -- of that.

20 Q. [11:55:13] Thank you.

21 Now, the Prosecution didn't provide you coordinates where no monument had  
22 been destroyed to see if you would confirm that there was no destruction in  
23 the image, did they?

24 Sorry, that was not a very clear question. Let me --

25 A. [11:55:38] It's --

1 Q. [11:55:39] You were not provided images where there was no monument  
2 to see if you would identify --

3 A. [11:55:48] No.

4 Q. [11:55:49] No. In other words, there's no kind of notional control group,  
5 is there?

6 A. [11:55:55] Right, right. Yeah, we didn't -- we weren't tested.

7 Q. [11:56:02] And in your first report, which is at MLI-OTP-0017-0029 at 0033,  
8 you specifically describe how:

9 "The ICC request letter stated that analysis should be confined directly to  
10 the location of monuments provided and so no analysis of surrounding areas  
11 was performed for this project." You didn't conduct any analysis of the  
12 surrounding areas, did you?

13 A. [11:56:36] Not, not for -- yeah, no, not for this analysis, and I don't believe  
14 we've looked at the situation beyond that.

15 Q. [11:56:58] Now, the Court has heard that some structures were not  
16 destroyed but, rather, suffered from a lack of maintenance. And you don't  
17 have to concern yourself with this, but the reference is transcript 24, pages 69 to  
18 70.

19 Were you ever asked to do a before and after comparison for a period prior to  
20 2012 to verify whether erosion, weathering or lack of maintenance could have  
21 resulted in similar kinds of images to those which you identified as destroyed?

22 A. [11:57:29] No.

23 Q. [11:57:29] Thank you. And in -- I have here the precise citation for  
24 the question I asked you earlier, which is Defence -- I'll just read it because  
25 we've already answered the question, but it's Defence tab 5,

1 MLI-OTP-0078-8210 and this concerned --

2 THE COURT OFFICER: [11:57:55] Can I ask the Defence, please, to slow  
3 down when giving reference numbers and on the floor also for the interpreter.  
4 Thank you very much.

5 MR ROWSE: [11:58:03] of course. And this concerned the small deviations  
6 of GPS points.

7 Q. Perhaps I can bring that actually to your attention because I have  
8 a couple of questions.

9 So if I'll read that again, MLI-OTP-0078-8210, that's Defence tab 5. And my  
10 question for you is, at this point, you'd formed a view that these were  
11 monuments that you were looking at?

12 A. [11:58:54] Well, it says:

13 "[...] to what we believe are the monuments in question [...]"

14 So I was asked to look at monuments. I was given coordinates. We thought  
15 we understood what the monuments were and where they were, but we  
16 wanted to double confirm with the Office of the Prosecutor.

17 Q. [11:59:23] Now I'd like to move on to the scope of your report. You did  
18 not make any discussion in your reports as regards the time of day that  
19 the before and after pictures were taken, did you?

20 A. [11:59:45] No, I did not go into that level of detail. But in the metadata  
21 of the images, I believe the time of acquisition is down to the picosecond.

22 Q. [12:00:05] So if this could impact upon an assessment of the accuracy of  
23 your conclusions, that being the time of day which the images were taken,  
24 there wouldn't be any reasoning for your reader to examine, would there?

25 A. [12:00:17] No. I mean, if the, for example, if the date of destruction was

1 reported to be, you know, late July and we had one image from mid -- or late  
2 June and we have one image from mid-June and then an image from mid-July,  
3 those two images would effectively bracket the reported date of destruction.  
4 If we were looking at some other situation, which we've done, you know, say  
5 a convoy passes an area at 12.02 p.m. local time, then maybe the precise time of  
6 acquisition would be much more relevant to us.  
7 But in this, you know, the before image is two weeks before, the after-image is  
8 a week or two after, so the time of day is -- is not consequential.

9 Q. [12:01:17] And you have anticipated again one of my questions, but now  
10 within the time period between the before and after pictures, which you've just  
11 spoken about, you didn't try to identify the precise point in time of what you  
12 considered to be the change between the two images?

13 A. [12:01:38] No. So, imagery -- so to see changes like this, to see a small  
14 structure removed in one way or another, there is a relatively small number of  
15 satellites in orbit that are capable of doing that. There are many more  
16 satellites in orbit collecting imagery every day or four times a day or something  
17 like that, but they are of much lower resolution. Meaning, you would not see  
18 small, individual structures. Those satellites are much more for weather  
19 monitoring or, you know, large-scale deforestation or volcanos or something  
20 like that. So, yeah, in this case, there really were no other sources for us to  
21 draw from.

22 Our ideal situation would, yes, be an image collected, you know, one minute  
23 before and one minute after the reported event, but that has never happened in  
24 my career.

25 Q. [12:02:55] So, I've seen in reading the testimony of your other case -- in



1 other cases in which you've worked or in which you've been a witness in  
2 before the ICC, that your reports discussed burning buildings. And you  
3 didn't identify examples of burnt buildings here.

4 So when you're identifying damaged objects, in this case, we should really  
5 have in our minds - when you say that - some kind of very physical process of  
6 damage. Is that correct?

7 A. [12:03:25] Yeah, I mean we would -- we would term this as demolition.  
8 In other situations, for example, if you're looking at structures which were  
9 made of wood, and then they are burned and you are left with a black pile of  
10 ash on the ground, then, yes, that would lead us to say this was a -- a burned  
11 structure.

12 I can go into more detail on ash patterns if you like.

13 Q. [12:04:00] I hope I won't be surprised with the answer to this question,  
14 but you're not a structural engineer, are you?

15 A. [12:04:07] No.

16 Q. [12:04:08] And in reaching these conclusions in the report, it sounds like  
17 you didn't take into account the materials that the structures were made of, did  
18 you?

19 A. [12:04:20] In this particular case, no. It was what we call a binary  
20 classification, is it there or is it not there?

21 Q. [12:04:30] And you were not asked to examine the cause of alleged  
22 destruction, were you?

23 A. [12:04:36] No.

24 Q. [12:04:42] And I think - as we understood earlier - you did no analysis of  
25 cyclical modification or change to the structures due to weather patterns or

1 non-human effects?

2 A. [12:04:55] No, we didn't do a time series or anything of that nature to -- to  
3 see, you know, what they looked like in different seasons --

4 PRESIDING JUDGE MINDUA: [12:05:16](Interpretation) Mr Witness, you're  
5 speaking the same language as the Defence counsel. So please, try and  
6 observe a pause. Otherwise, the interpreters are finding it difficult to  
7 interpret.

8 I do find it difficult to follow you myself.

9 MR ROWSE: [12:05:40] Also my excuses to the interpreters, I'm sure I'm also  
10 moving too quickly.

11 Q. [12:05:57] Now, were you aware that some of the structures had  
12 exoskeletons or internal structures that go beneath the ground?

13 A. [12:06:08] No.

14 Q. [12:06:14] And you noted on a number of occasions that you saw debris,  
15 which suggested that physical material remained on the ground; is that  
16 correct?

17 A. [12:06:25] Yes.

18 Q. [12:06:28] And without information about the original structure, you  
19 might only be able to conclude that the external exoskeleton had been removed;  
20 is that correct?

21 A. [12:06:47] We don't see underground, if that's what you're asking.

22 Q. [12:06:56] And therefore not that the monument itself was destroyed?

23 A. [12:07:01] I don't understand.

24 Q. [12:07:02] Well, let me, let me back up a little bit then.

25 You said, we don't see underground. We don't see within the structures -- or,

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1 rather, that you were not aware of the exoskeletons. So when you say  
2 destroyed, it's -- given that you're not aware of that information, it is a -- it  
3 doesn't take those factors into account.

4 A. [12:07:37] I would refer to the, the screen shots indicating what we should  
5 be looking at.

6 Q. [12:08:01] Now I think that you've probably answered this, but it's worth  
7 just making it absolutely clear. Is it even possible with satellite imagery to  
8 determine the precise cause of destruction of an object?

9 A. [12:08:17] In some cases, again, if it's fire, if it's something where large  
10 amounts of explosives are used, but only in relatively broad terms. If a -- if  
11 a bulldozer was used and tracks were left by the bulldozer, we would note that.  
12 But, again, relatively broad.

13 Q. [12:09:00] Now, we've reached the point in my questioning where the,  
14 the exhibit that my colleague raised concerns about earlier was going to be  
15 discussed with you. And what I think may be helpful first to clarify, is that  
16 the table that was provided is a -- was miss -- misstamped and disclosed and  
17 that the material in -- that was provided in the tab today is the underlying  
18 information that was taken from the website.

19 What I would like to do is to show you the specific days, not the summaries, I  
20 think as my colleague raised concerns of. But perhaps ...

21 MS MARTIN SALGADO: [12:09:58] We just --

22 PRESIDING JUDGE MINDUA: [12:10:01](Interpretation) (Overlapping  
23 speakers) Yes, please, Madam Prosecutor.

24 MS MARTIN SALGADO: [12:10:05] (Overlapping speakers) We just don't see  
25 from the tabs that have been provided to us, the underlying days.

1 MR ROWSE: [12:10:48] Let me move on for a moment before we find  
2 the -- just the question will probably -- it can be asked more generally rather  
3 than referring to this initially.

4 Q. [12:10:59] Are you aware that Mali has a rainy season?

5 A. [12:11:04] Yes.

6 Q. [12:11:08] And if I told you that the rainy season runs roughly between  
7 sometime in July until October, would that sound correct to you?

8 A. [12:11:18] I would not disagree.

9 Q. [12:11:26] Now, were you told that as a consequence of the rains,  
10 the structures could be eroded?

11 A. [12:11:36] We didn't consider that. This is a very arid area of Mali.

12 We've looked at a lot of arid areas. I have looked at a lot of arid areas. I can  
13 tell you that when structures erode, we refer to it as ablation and that's -- that is  
14 something that does happen. But in arid areas, you would see remains for, for  
15 quite some time, I would say.

16 Q. [12:12:24] Would you see -- sorry, excuse me. Were you aware that these  
17 structures were made from mud? The structures at the core of your reports?

18 A. [12:12:40] It makes sense, given what the whole city looks like.

19 PRESIDING JUDGE MINDUA: [12:12:51](Interpretation) Mr Duterte, please.

20 MR DUTERTRE: [12:12:53](Interpretation) Yes, Mr President, your Honours.

21 I think this is a shortcut with regard to another witness's testimony, \* P-0104, as  
22 to the structure of these monuments and, namely, the indication as to  
23 other -- the existence of other surfaces other than, than dirt, if you like, or earth.  
24 So I would like the Defence to give the references to the transcript, to the lines  
25 of said transcript and to be exhaustive, without picking and choosing from

1 certain aspects. Thank you.

2 PRESIDING JUDGE MINDUA: [12:13:43](Interpretation) Mr Rowse, you  
3 heard what the Prosecutor just said. Please be precise and, in that way,  
4 the witness can follow what you're saying.

5 MR ROWSE: [12:13:55] Yes, your Honour.

6 Q. [12:14:02] The -- what I'm interested -- perhaps, and just discussing with  
7 you is extrinsic factors that you may be perhaps not aware of in the region. So  
8 when identifying the -- or, when, when examining these images, you also  
9 didn't take into account that the region experiences sandstorms and blowing  
10 sand and the like, did you?

11 A. [12:14:35] Not directly, no. If we -- yeah, if we had seen trees blown over  
12 and, you know, other signs of destruction in the area, then we might have  
13 made note of it, but, yeah, it did not come up in, in this.

14 Q. [12:15:01] Now, you discussed briefly earlier on today, using shadows to  
15 examine the Al Farouk monument. But did you otherwise consider analysing  
16 shadows when preparing these reports?

17 A. [12:15:21] The prime indicator of a structure being -- or a prime indicator  
18 of a structure being there would be the shadow that it's casting. So that tells  
19 us it's above ground. If you want to do the math based on the time of day and  
20 the length of the shadow, and the seasonality, you can determine the precise  
21 height of the structure. Given my math skills, that's something I would defer  
22 to a colleague, but it is a, a method in use. So shadows are, are a main visual  
23 clue that you're -- you're looking at something that rises above the ground as  
24 opposed to laying on the ground.

25 Q. [12:16:40] So, when examining satellite imagery, are there any kinds of

1 technical limitations that particularly hinder doing the kind of work you have  
2 described in your reports?

3 A. [12:16:59] Clouds are the biggest problem for this kind of satellite  
4 imagery. If a cloud is over the area, you are not seeing it. Beyond that, it's  
5 the size of the thing that you're looking at. And again, this goes to the image  
6 resolution issue. So we see structures, for example, but we don't see people.  
7 However, at the right time of day, we may identify people being in the area if  
8 the shadow they cast is long enough.

9 So those are the -- the main types of, of issues for, for this analysis.

10 Again, with the Al Farouk monument, that itself was too thin. The resolution  
11 of the imagery was not enough to see the monument while it was standing,  
12 which is why I used shadows to understand that, and then once it's laying on  
13 the ground, you can see it.

14 So, again, size of the object and the cloud cover is -- or, would be two of the  
15 main limitations.

16 Q. [12:18:18] And is atmospheric interference different from cloud cover?

17 A. [12:18:29] Yes, cloud cover would be the most extreme level of  
18 atmospheric interference. In Timbuktu, a nice arid area, there's very little  
19 atmospheric interference compared to, say, looking at The Hague, which is  
20 always foggy.

21 So, in Timbuktu I would not consider that to be an issue. If there is a cloud,  
22 it's easily visible.

23 Q. [12:19:04] Can I just ask you perhaps to explain to the Court what  
24 atmospheric interference is as distinct from clouds. Just for clarity.

25 A. [12:19:12] Not being an atmospheric scientist, I can tell you, from my

1 perspective, moisture in the air can downgrade an image quality.

2 The satellites are fairly far above the ground in orbit and if it's a very humid  
3 area, if there is a mist on the ground, you will see that as degraded image  
4 quality. But, again, we didn't see any signs of that in a nice arid place like  
5 Timbuktu.

6 Q. [12:19:50] I think in the Ntaganda case, you referred to cirrus clouds as  
7 another example, as distinct from perhaps more, more thunderhead type  
8 clouds, I guess?

9 A. [12:20:05] So very high, thin clouds, yeah, I would -- and those can be  
10 quite tricky, but you would certainly notice it in the image. When you receive  
11 the full resolution image and look at it, at its maximum magnification, so to  
12 speak, you would just see instantly that it's of a lower quality than, than other  
13 images.

14 Q. [12:20:40] And when you say degraded, we're talking about diffused or  
15 slightly distorted; is that correct?

16 A. [12:20:49] Diffused, maybe distorted. But yeah, again, it would lower  
17 the resolution of the image. So smaller objects would not be visible. Larger  
18 objects like a small structure would be less visible. You may not be as certain  
19 of things like shadow and stuff like that.

20 Q. [12:21:25] I believe you've discussed it, but perhaps I'm confusing things,  
21 but the role -- what role does cloud cover play in obtaining historic satellite  
22 imagery?

23 Maybe I can reframe that slightly easier.

24 Does cloud cover interfere with the process of obtaining historic satellite  
25 imagery?

1 A. [12:21:49] It does if there are clouds present. Earlier, we looked at the  
2 browse imagery of a satellite imagery. So the browse image is the low quality,  
3 low-resolution version that the vendor offers so that you can see if there are  
4 clouds in the image.

5 And so based on that, you make your, your purchase. If there are no clouds,  
6 you purchase. If your area is a hundred per cent cloudy, you would not  
7 purchase. So, yeah, that's, that's how we deal with that, basically.

8 Q. [12:22:27] Perhaps if I, I can just put it to you that the presence of clouds,  
9 even where there are historic images, may limit the utility of them or limit  
10 the utility of the historic imagery?

11 A. [12:22:41] Exactly, yeah, if the cloud is over what you are interested in.

12 Q. [12:22:54] Now, I'll shift gears a little bit to discuss with you Google Earth.  
13 Do you know whether Google Earth coordinates contain a margin of error for  
14 privacy or security reasons?

15 A. [12:23:14] For -- well, coordinates are coordinates. There is always  
16 a certain offset in what a coordinate might indicate depending on the map  
17 projection that you are using. So there are ways to be very, very precise and  
18 then there are ways where precision is, is less necessary. And, yeah, beyond  
19 that, that would be a question for Google.

20 Q. [12:23:55] So perhaps what I understood then is that, if that is the case, it  
21 may or may not have -- be separate from the issue of what I believe you've  
22 described as circular error. And, if you could describe that. If that's correct?

23 A. [12:24:14] Yes, so if I am standing at a location and I'm holding a GPS unit,  
24 the accuracy of that GPS unit depends, first, on the quality, which relates to  
25 the size and how big the antenna is, and also how long you stand there.



1 Secondly, when you take that GPS coordinate and use it with a satellite image,  
2 the satellite image itself has a certain amount of circular error because  
3 the satellite is moving very quickly in orbit and there is also terrain factors. So  
4 if the entire area is an up slope or a down slope, there will be some small shift.  
5 The process of correcting that is called orthorectification. And we do basic  
6 orthorectification where you want both sets of coordinates to be as aligned as  
7 possible, but it's still common to have, you know, two metres, three metres  
8 of -- of error of the coordinate versus where the person was standing, or versus  
9 where the, the satellite image is.

10 It's a fairly minimal issue. In this analysis, the screen shots with the circle  
11 indicating which building to look at eliminated that, that as a -- as a factor.

12 Q. [12:26:00] With what you've said about Google Earth, and that we should  
13 ask Google, I guess you're not in a position to confirm whether the elevations  
14 in Google images are not always accurate due to the fact that they're composite  
15 images, are you?

16 A. [12:26:21] No, and we wouldn't rely -- yeah, we would use Google Earth  
17 simply for the visual representation of the image. Other details we would get  
18 from our own software or -- or elsewhere. Google Earth is essentially a great  
19 library of high-resolution imagery, but using it for very precise navigation or  
20 engineering purposes, I don't think anybody does that.

21 Q. [12:26:54] And perhaps one, one final question on this, on open -- on this  
22 kind of source of imagery. I imagine it may be, having been experienced by  
23 those in the court even playing with Google Earth or Google Maps, but  
24 the colour images can also shift in this kind of public, it's not open source, but  
25 it's open, free, given -- given -- this kind of imagery that is given away.

1 The colours that you see in the images may not be accurate. There's drift  
2 between different sets and so on?

3 A. [12:27:40] Yeah, this gets fairly technical. So, a Google Earth image is an  
4 8-bit JPEG. Meaning, each pixel has a bit depth of 8 bytes. The imagery that  
5 we use is richer in that it may be, it's generally 16-bit imagery; so you can think  
6 of, say the difference between an old cassette tape and a CD. A cassette tape  
7 has a lower-quality version of the music versus the CD, for example.  
8 With our software and using the original imagery, you just have a richer colour  
9 palette that you can look at. Whereas the Google imagery is, say, distilled to  
10 a best median colour balance for perhaps 5,000 square kilometres or something  
11 like that.

12 Q. [12:28:50] From what I've understood then --

13 THE COURT OFFICER: [12:28:53] The interpretation, please.

14 MR ROWSE: [12:28:55] Sorry. Excuse me.

15 Q. [12:28:57] And from what I've understood from you there then, in Google  
16 imagery, your -- you've given an explanation for why, in some cases, objects or  
17 shadows may be not realistically coloured or may, may not -- may be  
18 confusable, in short. That the colours one sees in Google imagery are not  
19 necessarily representative of, of the higher quality imagery that you've  
20 described?

21 A. [12:29:41] Correct. Yeah, and that's just an artifact of their processing  
22 and their goal is to not look at a single building in as much detail as possible.  
23 It's to look at as much territory as possible. So when I'm doing it, I can really  
24 optimise the colouring for that particular building that I'm looking at. I'm not  
25 concerned about making, you know, a thousand square kilometres a realistic

1 colour. I'm -- I'm looking at a, you know, a very small area in this kind of  
2 analysis.

3 Q. [12:30:16] Just one moment.

4 Sorry, excuse me.

5 Now I'd like to bring you back to the preparation session notes that we  
6 received from your conversation with the Prosecution, before eventually  
7 moving on to your -- to the actual images from your report. But I think this  
8 will be the last section before I will request that we take a break to consider  
9 how we move forward.

10 Now, according to the log we received of your preparation session, that session  
11 was broken up into two days. This was -- was this in part because you  
12 expressed that you wanted to study your reports more?

13 A. [12:31:35] Not necessarily. It was the issue of identifying the specific  
14 images from the CDs, I think, turned out to be a much longer process than  
15 anticipated.

16 Q. [12:31:57] I believe it also involved verification of a number of coordinates;  
17 is that correct?

18 A. [12:32:05] I mean, yeah, based on the first day's conversation, there were  
19 the two or three discrepancies pointed out which we addressed. But yeah,  
20 I -- I'm familiar with the materials. I had reviewed them before coming here.  
21 But, yeah, I reviewed them again after the first day's discussion.

22 Q. [12:32:37] Now, final question on this: In your original letter of  
23 instruction, I don't recall seeing mention of testimony as a consequence of the  
24 work you were doing for the Prosecution.

25 Did you anticipate presenting these reports in court?

1 A. [12:33:01] At the time -- I mean, that's generally been the goal of this work  
2 for quite some time. And, yeah, we wanted to support the Court. Whether it  
3 ever came to testimony or not was not something we really dwell on.

4 MR ROWSE: [12:33:31] So, Mr President, I've come to a kind of logical break  
5 in my questions. I think it would be good to discuss with counsel in -- over  
6 the lunch break.

7 So I'm wondering if we can break and continue after lunch? It's possible to go  
8 forwards, but I think it would be advisable.

9 PRESIDING JUDGE MINDUA: [12:34:01](Interpretation) Normally speaking,  
10 we would break at 1 o'clock and restart at 2.30.

11 Why do you want to break now?

12 MR ROWSE: [12:34:19] So we will be -- in the next section, we will be  
13 discussing the images from the witness's report and it would be good to go  
14 through this morning's testimony just to make sure that our questions are  
15 helpful and relevant.

16 It's not a problem if we -- or we could propose to return at 2 o'clock rather than  
17 2.30.

18 PRESIDING JUDGE MINDUA: [12:35:02](Interpretation) Mr Rowse, in order  
19 not to waste the time of the Chamber, we will start half an hour earlier. In  
20 other words, we will keep to the usual length of lunch break.

21 So we will suspend the hearing now and we will start at 2 rather than 2.30.

22 Are we agreed on that?

23 Thank you.

24 In that case, we will suspend the hearing.

25 The hearing is suspended.

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1 THE COURT USHER: [12:35:44] All rise.

2 (Recess taken at 12.35 p.m.)

3 (Upon resuming in open session at 2.02 p.m.)

4 THE COURT USHER: [14:02:51] All rise.

5 PRESIDING JUDGE MINDUA: [14:03:15](Interpretation) The Court is, once  
6 again, in session.

7 Mr Rowse, you have the floor for the next part of your cross-examination,  
8 please.

9 MR ROWSE: [14:03:32] Thank you, Mr President.

10 Q. [14:03:36] Before venturing through this last series of questions, I think it  
11 might be helpful to just give a brief explanation for the images that will be  
12 discussed.

13 In trying to describe to the witness certain parts of the images, I've taken  
14 the witness's reports and excerpted pages and applied some multicoloured  
15 circles to help focus and direct the witness to the parts of the images that I  
16 would like to discuss. I'll mention the references from the actual report so  
17 that for posterity, your Honours can later compare what we're looking at. But  
18 we are technically looking at a separate item.

19 Now, for the first, first series of questions, I'm going to be referring to images  
20 from two reports -- from the two reports.

21 I understand that we can't bring them up simultaneously on the evidence  
22 channel, so I'll ask the court officer to bring up one and then the other.

23 But for the witness, I'd like you, I think you should be able to find them in your  
24 books and hopefully you can compare them.

25 The first is from the first report. It is MLI-OTP-0017-0029 and this is at 0036,

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1 so I'll wait for that to come up.

2 THE COURT OFFICER: [14:05:19] It's on evidence channel 1 for everyone.

3 MR ROWSE: [14:05:24] And the second image is from

4 MLI-OTP-0021-001 -- sorry, 0017, and this is at -- I'm sorry, excuse us, but it's

5 upside down.

6 No, sorry, apologies, let me come back to this.

7 I'll move on and come back to this. One second.

8 (Microphone not activated) we'll pull up the Defence images, sorry.

9 So what we have is -- for the second image is MLI-D28-0004-0831 at 0831. So I

10 should see ... On evidence 1.

11 And for reference, I have here, this is from the original report -- the second

12 report, 0017.

13 Have you seen these two reports or two images, Mr Witness?

14 A. [14:07:26] Yes.

15 Q. [14:07:27] Now, for the first image, you describe as an explanation of

16 the image:

17 "[...] larger structure is identified [...]"

18 "[...](blue arrow)[...]"

19 "[...] and a smaller nearby structure is also visible (red arrow). By 15 July 2012

20 (bottom) both structures have been removed with discolored soil remaining."

21 End quote.

22 For the second image, the caption reads:

23 "[...] the Mausolee is no longer visible though probable debris remains [...]"

24 My colleague has pointed out, I'm getting the order of the images reversed.

25 So the first -- so 0835 -- sorry.

1 The -- now I'm getting confused myself here because I was confused when I  
2 looked at this.

3 But in the first case, you describe the structure as being removed, but in  
4 the second case you indicate that the debris remains, right?

5 A. [14:09:18] I'm a bit confused and I can't see the whole page on my screen,  
6 and maybe we're referring to the other page, or is there a tab number I can go  
7 to?

8 Q. [14:09:32] The first tab is tab 24 and the second tab is tab 48 from  
9 the Prosecution binder.

10 A. [14:10:02] And then, which figure of tab 24?

11 Q. [14:10:05] So figure 5 for tab 24, which is -- should be on the bottom  
12 0021-0017.

13 A. [14:10:16] Mm-hmm.

14 Q. [14:10:16] And then for tab 48, you should be looking at figure 2,  
15 0017 -- at the bottom is 0017-0036. And I'm referring you to the commentary  
16 below the bottom image.

17 A. [14:10:38] So figure 5 from the first report and figure 2 from the second?

18 Q. [14:10:43] That is correct, yes.

19 And then my question perhaps to remind you is, in the second case -- rather, in  
20 the second case, you indicate that structures have been removed; whereas, in  
21 the first, you indicate that probable debris remains.

22 A. [14:11:14] And the question?

23 Q. [14:11:19] The question is, can you explain this? Or, rather, the time you  
24 were viewing this photo, you saw something different, I suppose?

25 A. [14:11:37] Again, yeah, it's something that I've gotten more rigorous at

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1 since I did this, but being careful with possible and probable, I would say in  
2 both cases there is debris remaining. But, again, this gets back to the language  
3 of the, the image analysis field, where possible and probable are -- are often  
4 used. But for -- for these purposes, I would say debris is visible in both of  
5 them. Full stop.

6 Q. [14:12:38] Now my next question is, do you think the two reports contain  
7 the same image?

8 A. [14:12:46] No. You can look at the structures around and see numerous  
9 differences between figure 5 in the first report and figure 2 in the second one.

10 Q. [14:13:14] So you don't --

11 A. [14:13:18] But then what I have on my screen is something else.

12 PRESIDING JUDGE MINDUA: [14:13:28](Interpretation) Prosecutor.

13 MR DUTERTRE: [14:13:31](Interpretation) Yes, if I could perhaps try to clear  
14 up this confusion. We're talking about figure 5 in the first report, where it  
15 was actually figure 2. And it's figure 5 in the second report. With this, may  
16 explain why the witness is lost, as I am myself.

17 PRESIDING JUDGE MINDUA: [14:13:54](Interpretation) I don't know  
18 whether I can help. In the report, which is at tab 48 of the Prosecution binder,  
19 we have figure 5 and that sends us to mausoleum Sheikh Mohamed Mahmoud  
20 Al Arawani. Whereas, in figure 2 in tab 24, we have Sidi Mamoudou Ben  
21 Omar Mohamed Aquit. Is that correct, Prosecutor?

22 MR DUTERTRE: [14:14:38](Interpretation) That's how I understand it,  
23 your Honour.

24 PRESIDING JUDGE MINDUA: [14:14:41](Interpretation) But, Mr Rowse, are  
25 we talking about the same monuments here? What I mean is, are we talking



1 about different ones in the two reports?

2 MR ROWSE: [14:14:59] Thank you, Mr President. Sorry for the confusion, I  
3 had the images back the front here. Indeed, we're talking about the upper  
4 image of both reports, which appear to have different labels.

5 THE WITNESS: [14:15:14] So I think I can shed some light on this.

6 Remember, the reports were done a few months apart. So in the first one, I  
7 notice that both structures were destroyed and so I was pointing it out, but  
8 I don't think that that's what the Court was asking at the time.

9 For the second report, I think the information that they were after, the smaller  
10 structure but they -- both figures show the same location, but there are two  
11 buildings there or two structures there.

12 So the first report, perhaps I was unsure which one they were referring to, so  
13 I was pointing out both of them, or perhaps I was just pointing it out because  
14 it's visible on the frame and I didn't want to leave it unexplained.

15 But my guess would be that one, one structure is the Sidi Mamoudou Ben  
16 Omar Mohamed Aquit and the second structure is the mausolea  
17 Sheikh Mohamed Mahmoud Al Arawani.

18 MR ROWSE: [14:16:37]

19 Q. [14:16:37] And to come back to my question, now that my colleagues  
20 have helped me straighten out my images, do you believe that that's the same  
21 image in both reports?

22 A. [14:16:49] I mean, so you can compare the trees surrounding it and  
23 the trees or the bushes are -- are in the same position, so, yeah, I would say it's  
24 the same image with the same dates, but referring to the two different  
25 structures.

1 Q. [14:17:15] But the two images -- well, in the image in figure 5, there  
2 appears to be -- appears to be brighter, to my eye.

3 A. [14:17:24] Okay, another thing going on here is just the quality of printer.  
4 I almost believe these things were scanned and then printed. This has  
5 happened here before. But, yeah, at that point you're asking me about  
6 the toner and the printer and things like that. It's possible I did not use  
7 the exact same settings when I exported both images, and so  
8 the second -- the figure 5 in report 2 appears a bit brighter than figure 2 in  
9 report 1. You can see the same patterns of soil discolouration in both. It's  
10 just that in report 2, it's much brighter than report 1, and whether that's in my  
11 original document or because of the printer toner of the court, I can't say.

12 Q. [14:18:33] Now, okay, so you --

13 A. [14:18:39] So they're the same images showing the same locations, they  
14 just look different for fairly explainable reasons. There's different colour  
15 balances and settings you can use when you convert the image into a PDF,  
16 which is what the report is. And I think that that's basically what you're  
17 seeing here because you'll notice the bottom image is also darker.

18 Q. [14:19:13] But you would expect to be brighter, I imagine.

19 A. [14:19:18] I'm -- yeah, I mean ...

20 Q. [14:19:20] But perhaps let me, let me get to the core of the issue. Do  
21 you -- were these images post processed?

22 A. [14:19:29] By post processed, what do you mean?

23 Q. [14:19:33] Colour balance changes? Adjusting the contrast?

24 A. [14:19:36] Not now. They would have -- that would have been in  
25 the GIS software, but I did not think to make figure 5 in report 2 the exact same

1 colour balance as figure 2 in report 1. Assuming that the problem originated  
2 or the difference originated in the software as opposed to the -- the printer or  
3 the scanner of the court.

4 Q. [14:20:08] If this issue didn't originate at the court, then either  
5 the processing has hid detail in the December report or the latter report or  
6 the processing -- sorry. Either the processing is a detail in the earlier report or  
7 has revealed detail in the July -- in the later report, isn't it?

8 A. [14:20:32] I think the point of the analysis was the status of the structure  
9 as opposed to the soil, and so I would say the analysis is the same. Both  
10 structure -- both figures show structures removed. And, yeah, that's about as  
11 much as I can say without going back to the -- the source imagery.

12 Q. [14:21:19] Presupposing that this hasn't been introduced by scanning or  
13 a printer, one of the images is darker and the other is perhaps slightly blurred;  
14 isn't it?

15 A. [14:21:31] Yeah, which is why I don't want to --

16 PRESIDING JUDGE MINDUA: [14:21:38](Interpretation) Prosecutor.

17 MR DUTERTRE: [14:21:40](Interpretation) Presupposing is completely  
18 speculative and therefore we object.

19 PRESIDING JUDGE MINDUA: [14:21:47](Interpretation) Objection upheld.  
20 This is really pure speculation, Mr Rowse.

21 MR ROWSE: [14:21:54] I'll move on, your Honour.

22 Q. [14:22:01] Now, direct your attention to the 15 July image in the same  
23 figure, figure -- it can either be figure 5 or figure 2, and actually I'll bring -- I'll  
24 ask the court officer to bring up one of these images that I've referred  
25 you -- referred to earlier, which is at MLI-D28-0004-0833, and I'd like to show

1 you page 0835.

2 So what I'd like to direct your attention to is the -- part of the image I've circled  
3 with a blue, blue circle. I don't think it's necessary to turn the page, but if we  
4 turn the page we can remove these circles.

5 My question in relation to this, is, there appears to be some kind of  
6 discolouration. Could this be an indication that there'd been rain?

7 A. [14:24:30] Do you mean the blue circle?

8 Q. [14:24:32] (Microphone not activated) Yeah (inaudible). Yes,  
9 the discolouration under the blue circle, which if we can scroll up slightly to  
10 the --

11 A. [14:24:42] I mean, I will say that, yeah, the image quality here, I wouldn't  
12 want to say, but I do recall seeing elsewhere that, yes, there were pools of  
13 water or a pool of water. So figure 6 in report 1, which I had shown, I believe  
14 shows some obvious water. So, yeah, it's possible that there was rain.

15 The blue circle here, could be rain. When rain falls on an environment like  
16 this, it will tend to darken the entire landscape. But if it's been a couple of  
17 days, for example, everything else dries except for wherever the water pooled  
18 or turned into mud. But now I'm speculating honestly.

19 Q. [14:25:39] Thank you.

20 One more question about this image. Is it the case -- I think elsewhere you  
21 said that trees that overhang buildings can sometimes impact upon your ability  
22 to assess damage by obscuring shadows?

23 A. [14:25:59] Or, yeah, obscuring the building itself. Satellites are up above,  
24 they're looking down, sometimes you're looking at a slight angle. But if the, if  
25 the tree is completely covering the structure, for example, you would not see

1 the structure.

2 Q. [14:26:23] Thank you. So we'll turn to a further image. And here, I  
3 would ask the court officer to bring up MLI-D28-0004-0833 at 0837 and for, for  
4 reference, this is drawn from the document MLI-OTP-0017-0029 at 0040.  
5 I'd like to draw your attention to both circled objects in this image. They're  
6 not in the prior -- perhaps if we can zoom out a little bit, sorry. Just zoom out  
7 so we can have the two, the before and after. Thank you.

8 So those two elements that I've circled, they're not in the before image, are  
9 they?

10 A. [14:27:26] Ah, the -- the blue and the green circle?

11 Q. [14:27:28] Yes.

12 A. [14:27:29] I would say they are. I believe this is a cemetery and the green  
13 circle -- so the blue circle, yes, I see them in both. The bottom image is a bit  
14 lighter than the top image. And then the other, the green circle, yeah, not  
15 necessarily.

16 Now, that could be minor shadows from, you know, just differences in sun  
17 position basically. If this is a cemetery and perhaps those were graves that  
18 were dug, then they would be new versus the June image. But the blue circle,  
19 yeah, I do see those there. You see the bush to the right of the blue circle as  
20 well in both of them.

21 Q. [14:28:26] Now, to my eye, what you've described as soil discolouration  
22 and debris, at least seems to be possibly the same colour as those objects. Is it  
23 possible that at least some of the -- what you're identifying as debris is  
24 the same stuff as the items I've circled?

25 A. [14:28:56] So, again, it's the absence of the structures that lead you to -- or

1 leads me to say debris. Where your green circle is, there is no structure in  
2 June, so I would not look for debris there.

3 Where my arrows are, we have structures in the June image versus something  
4 else in the July image, and, yeah, based on looking at many, many images of  
5 destroyed structures, we would identify that as, as -- I would identify that as  
6 debris.

7 But it's, it's true that you will see differences in images collected on different  
8 dates and, yeah, the earth is a very changeful place. From one day to the next,  
9 you can see, you know, someone has dug a hole or put up a fence or something  
10 like that.

11 So it's not uncommon to see differences between images, but what you're  
12 comparing -- what I'm comparing here is structures in one versus no structures  
13 in the second.

14 Q. [14:30:11] So I'll move on to the next image, which is at  
15 MLI-D28-0004-0833 at 0839, same document, and this is excerpted from  
16 MLI-OTP-0017-0029 at 0041.

17 Now, the main object I'd like to focus on here is the blue circle in the bottom  
18 image. I think it's good to leave it at that zoom level for the court officer.

19 My question is: It appears to have quite a different shape from that in  
20 the image before it, doesn't it?

21 A. [14:31:08] Yeah.

22 Q. [14:31:08] And if this was a tree in the space between those two images,  
23 it's changed its shape quite dramatically as well, hasn't it?

24 A. [14:31:19] Yeah.

25 Q. [14:31:20] Thank you.

1 Now on to what I believe is my final image, and this is at 0833 of the same  
2 document that the court officer has open, and this corresponds to - excuse  
3 me - MLI-OTP-0017-0029 at 0035.

4 So -- sorry, could we -- I misled the court officer.

5 Could we go back to the previous image, which is D28-0004-0833 at 0833.

6 Now, I'd like initially to focus on the top image. In your report, you indicate:  
7 "A small structure is visible along [the] western wall (yellow arrow) [...] this  
8 structure is no longer visible and has likely been removed, with possible debris  
9 remaining [...]"

10 If you had been -- not been told that you were looking at a monument, would  
11 you have known it, from this image?

12 A. [14:33:27] I wouldn't assume it.

13 Q. [14:33:30] Now, please focus on the object I've circled in blue on 18  
14 June 2012 image, this is the upper one, on the right. That object appears in  
15 both photos, right?

16 A. [14:33:49] Yes. Slightly different on July 15.

17 Q. [14:33:57] You anticipated my second question, which is that the object in  
18 the after photo is more blurry, I guess?

19 A. [14:34:06] Or there was some other change on the ground. Again, this is  
20 where the Google Earth screen shots were telling us what to, to look at.

21 Q. [14:34:17] But you didn't make any mention of the change in your report?

22 A. [14:34:22] No.

23 Q. [14:34:24] Now, there's other changes in this image as well or other  
24 differences between 18 June and 15 July image, isn't there?

25 A. [14:34:45] Yeah. I mean, again, these are a month apart. Sun position

1 will change. Even small differences will change how light is -- or reflecting off  
2 of rooftops. The sandstorm you mentioned as a possibility. In the 15 July  
3 image, your blue circle is probably water and so, yeah, any of that can quite  
4 significantly change these relatively minor aspects of the image.

5 I guess, theoretically, we could spend a lot of time doing a process to try and  
6 match them much, much more closely, but with budgets available, you can't do  
7 that for everything.

8 Q. [14:35:55] The central white box that I've circled in green in the bottom  
9 image is much less bright in the after-image. Why would that be?

10 A. [14:36:05] Again, it could be, you know, perhaps the -- a recent rain or just  
11 some minute aspect of how the building is positioned versus where the sun is  
12 positioned on both particular days.

13 Q. [14:36:28] So, in other words, there's qualitative differences between these  
14 two images?

15 A. [14:36:35] Yeah, I mean, they're also collected at different, slightly  
16 different angles, you can see. But, in this -- in these two images, we have  
17 a decent view of the western structure and we can see that it's been removed,  
18 which again was the point of the analysis.

19 Q. [14:37:05] And you didn't take into account these qualitative differences  
20 when examining these two images?

21 A. [14:37:14] Again, this is sort of a binary classification, is the, is  
22 the structure there or not there? And, I mean, in my original report, maybe  
23 these differences weren't as extreme. But, yeah, I didn't consider it to be a big  
24 factor at the time, or now.

25 Q. [14:37:41] Now, if what I said earlier on about the rainy season is correct,



1 you didn't consider that in examining this image when identifying -- when  
2 discussing the image, did you?

3 A. [14:37:57] No. Again, binary classification, is the structure there versus  
4 not there? You know, you can see there's also vehicles that have moved or at  
5 least one, we don't point that out either. I don't indicate the, the puddle in  
6 the road that you indicate, because, yeah, that -- that wasn't what we were  
7 asked.

8 Q. [14:38:27] Thank you. You've actually anticipated my question about  
9 the puddle.

10 A. [14:38:32] Or it -- it may be mud.

11 Q. [14:38:34] Maybe mud. Okay.

12 So, thank you. I've got a few more questions but I think we're done with  
13 the images.

14 So, to wrap up what we've discussed, it's correct to say that you identified  
15 differences in shapes within these images, isn't it?

16 A. [14:38:59] Yes.

17 Q. [14:39:02] And you're not asked to verify causes, of course?

18 A. [14:39:07] No. Not in this particular analysis as far as I recall.

19 Q. [14:39:12] And it was not because -- and particularly because you were  
20 not on the ground at the time either?

21 A. [14:39:21] Correct.

22 Q. [14:39:24] So at the highest, your report can stand for the position that  
23 there were differences in shapes that could have been caused by a range of  
24 factors that you were not able to verify. Is that correct?

25 A. [14:39:41] I mean, I would discount a 250 kilogramme bomb or anything

1 like that. Anything extremely drastic. But, yeah, we -- we did not delve into  
2 the causation issue in these particular issues. Explosives will leave  
3 a recognisable sign usually. Had we seen something like that, we would've  
4 noted it, but that was never in the context of what we were analysing. So,  
5 yeah, it wasn't -- it never came up.

6 Q. [14:40:19] I think I've reached the end of my questions. I thank you for  
7 answering them. I think my colleagues have no ... So thank you very  
8 much.

9 PRESIDING JUDGE MINDUA: [14:40:37](Interpretation) Thank you very  
10 much, Mr Rowse. That will be the end of your cross-examination, I imagine?

11 MR ROWSE: [14:40:44] That is correct.

12 PRESIDING JUDGE MINDUA: [14:40:51](Interpretation) Very well.

13 So I'm now turning to the judges of the Chamber. There are no questions.  
14 Neither are there any requests for the floor.

15 Witness, the Chamber would like to reiterate its thanks to you for helping it by  
16 replying in a precise way to the questions that were put to you. Your  
17 testimony has now been completed.

18 (The witness is excused)

19 PRESIDING JUDGE MINDUA: [14:41:20](Interpretation) I'm now turning  
20 towards the parties and I would like to remind them of paragraph 34 of our  
21 instructions on the tendering of items into evidence.

22 Now, before coming to an end of this hearing, I would like, as usual, to thank  
23 all the parties and participants. I would like to thank the court reporters and  
24 the interpreters. I also thank the security guards. And, finally, I would like  
25 to offer my thanks to the public and those who are following us attentively

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- 1 from afar.
- 2 I am now going to adjourn this session. We shall be back at 9.30 for the 11th
- 3 Prosecution witness.
- 4 Is that correct, Mr Prosecutor?
- 5 MR DUTERTRE: [14:42:48](Interpretation) That is, indeed, correct,
- 6 your Honour, your Honours.
- 7 PRESIDING JUDGE MINDUA: [14:42:51](Interpretation) Thank you,
- 8 Prosecutor.
- 9 I wish you all a very good afternoon.
- 10 The hearing is adjourned.
- 11 THE COURT USHER: [14:43:02] All rise.
- 12 (The hearing ends in open session at 2.43 p.m.)