



Mise à disposition des résultats

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► Site web CHEOPS

- Données expérimentales accessible au : <https://cheops.necs.fr/>
- Inscrivez vous et recevez un identifiant + pass
- Accès libre aux fiches CEOS.FR
- Informations disponibles :
 - Résumé
 - Géométrie (plans de coffrage, ferrailage)
 - Propriétés matériaux (essais, tableaux de valeurs)
 - Dispositif expérimental (bâti, appuis, environnement, photos)
 - Mesures (descriptions, schémas, fichiers numériques, commentaires et analyses)



The screenshot shows the CHEOPS website interface. At the top, there is a navigation bar with the text "Cheops" and the URL "cheops.intranet.necs.fr". Below this, a large banner features the "CHEOPS" logo in red, followed by the subtitle "EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT". Logos for EDF, COGEMA, and ELSA are displayed. Navigation buttons for "EXPLORE DATABASE", "REGISTER", and "LOGIN" are visible. A large image of a shear wall specimen is shown with handwritten labels "6-00", "6-01", and "T5-1". Below the banner is a table listing experimental data.

Id	Name	Title	Source	Actions
M_S_S_001	CEOS Program Shear Wall V1	Cyclic shear loading	CEOS.FR	
M_S_S_002	CEOS Program Shear Wall V2	Cyclic shear loading	CEOS.FR	
M_S_S_003	CEOS Program Shear Wall V3	Monotonic shear loading	CEOS.FR	
M_S_S_004	CEOS Program Shear Wall V4	Cyclic shear loading	CEOS.FR	
TMD_L_S_001	RG10	Large beam specimens with restrained shrinkage (RG10)	CEOS.FR	
TMD_L_S_002	RG8	Large beam specimens with restrained shrinkage (RG8)	CEOS.FR	
TMD_L_S_003	RG9	Large beam specimens with restrained shrinkage (RG9)	CEOS.FR	

At the bottom of the page, the text "NECS © 2015" and "Powered by NECS" are visible.

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EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT

EXPLORE DATABASE REGISTER LOGIN

Registration

Receiving again the validation mail

Email:

Confirm your email:

Password:

Confirm your password:

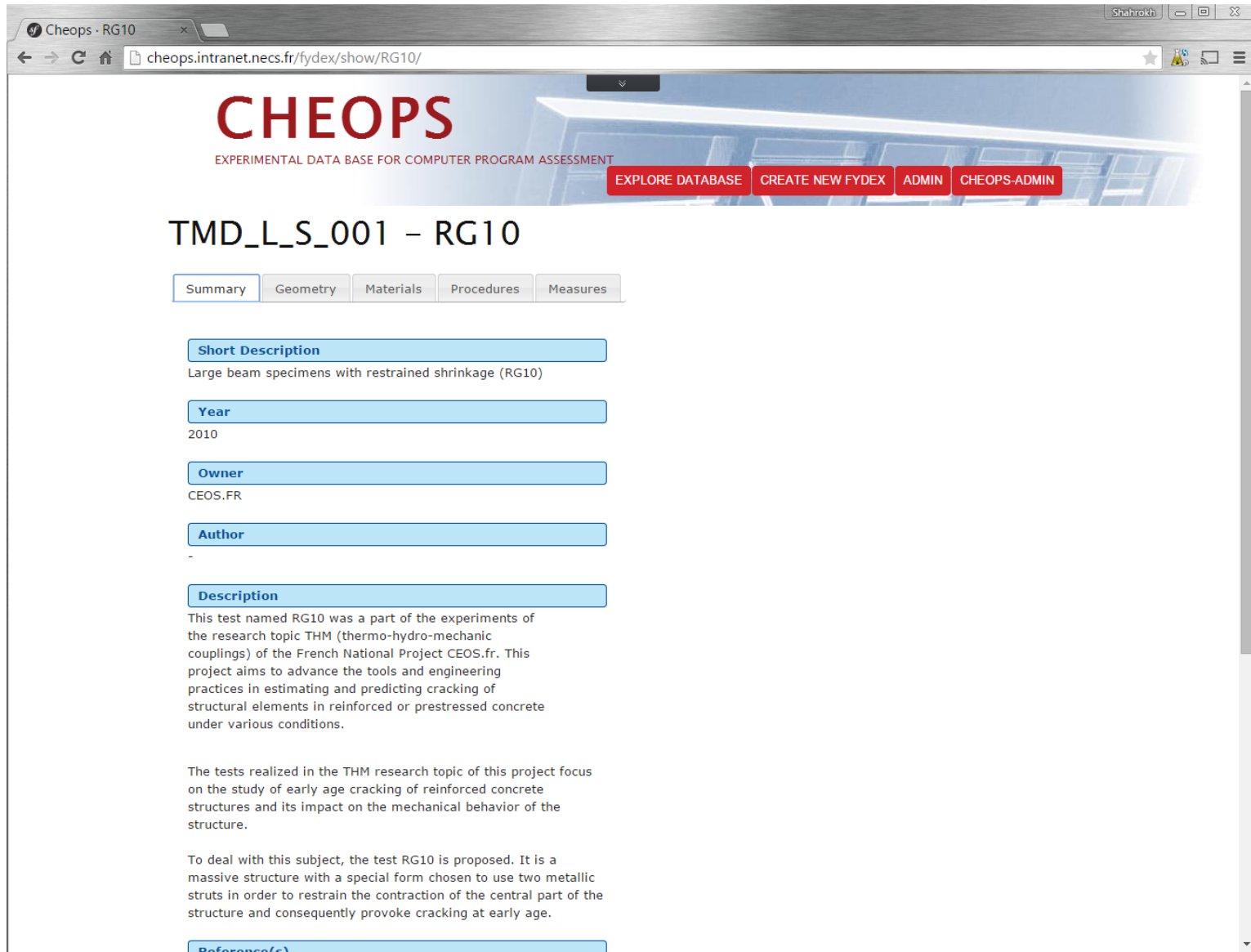
Optional : if you want to let us know what you are doing and who you are working for, maybe we can let you access to some of the private datas hosted on this website.

More (optional) datas about you:

Create an account

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EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT

EXPLORE DATABASE CREATE NEW FYDEX ADMIN CHEOPS-ADMIN

TMD_L_S_001 – RG10

Summary Geometry Materials Procedures Measures

Short Description
Large beam specimens with restrained shrinkage (RG10)

Year
2010

Owner
CEOS.FR

Author
-

Description
This test named RG10 was a part of the experiments of the research topic THM (thermo-hydro-mechanic couplings) of the French National Project CEOS.fr. This project aims to advance the tools and engineering practices in estimating and predicting cracking of structural elements in reinforced or prestressed concrete under various conditions.

The tests realized in the THM research topic of this project focus on the study of early age cracking of reinforced concrete structures and its impact on the mechanical behavior of the structure.

To deal with this subject, the test RG10 is proposed. It is a massive structure with a special form chosen to use two metallic struts in order to restrain the contraction of the central part of the structure and consequently provoke cracking at early age.

Reference(s)



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TMD_L_S_001 – RG10

Summary **Geometry** Materials Procedures Measures

Description

The massive structure RG10 is composed by a central part (5.1 m long, 50 cm wide and 80 cm high) and by two massive heads (90 cm long, 2.2 m wide and 90 cm high). Two cylindrical struts with diameter equal to 32.39 cm and thickness of 5.5 cm are linked to the heads and restrain the thermal strains occurring in the concrete central part during hydration.

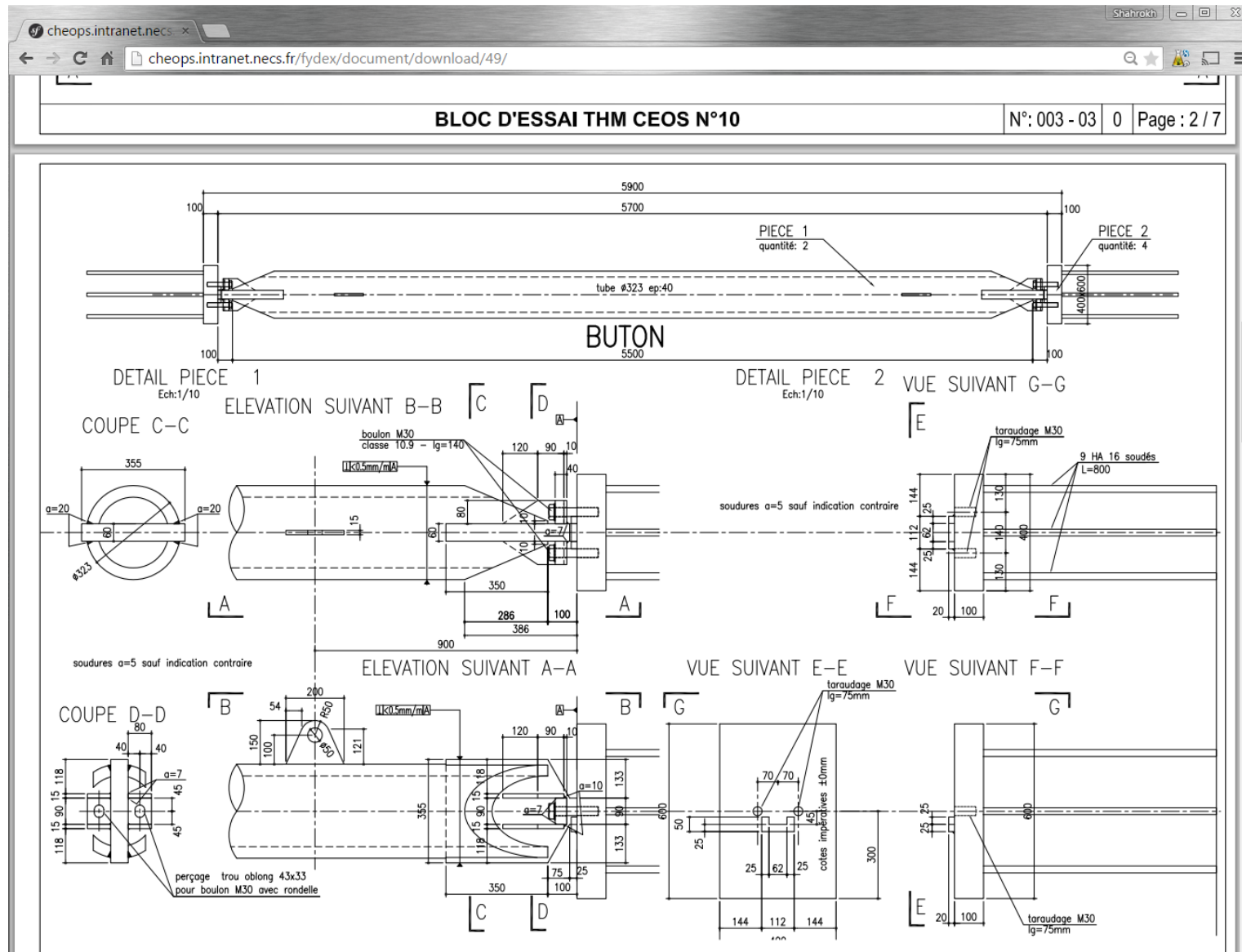
Note that the structure is reinforced and is also subjected to the prestressing of the "heads". All the structure dimensions are detailed in the files "THM_plan_RG10" and "THM_name_RG10". The picture of the sample RG10 after formwork removal in situ is available in the file "THM_photo_RG10".

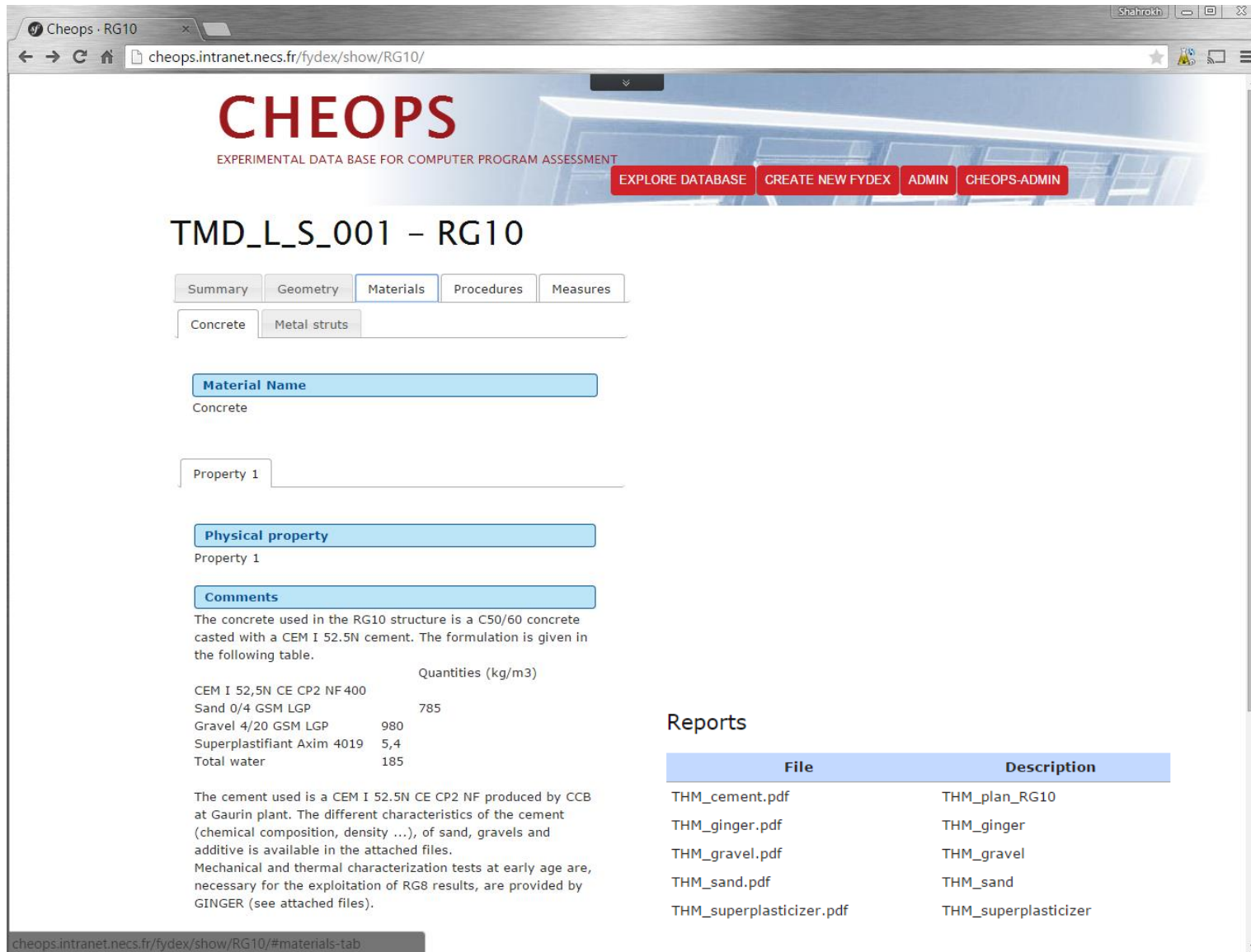
3D CAD drawing

File	Description
THM_name_RG10.pdf	THM_name_RG10
THM_plan_RG10.pdf	THM_plan_RG10

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cheops.intranet.necs.fr/fydex/show/RG10/#geometry-tab





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TMD_L_S_001 - RG10

Summary Geometry **Materials** Procedures Measures

Concrete Metal struts

Material Name
Concrete

Property 1

Physical property
Property 1

Comments
The concrete used in the RG10 structure is a C50/60 concrete casted with a CEM I 52.5N cement. The formulation is given in the following table.

	Quantities (kg/m3)
CEM I 52,5N CE CP2 NF 400	785
Sand 0/4 GSM LGP	
Gravel 4/20 GSM LGP	980
Superplastifiant Axim 4019	5,4
Total water	185

The cement used is a CEM I 52.5N CE CP2 NF produced by CCB at Gaurin plant. The different characteristics of the cement (chemical composition, density ...), of sand, gravels and additive is available in the attached files.
Mechanical and thermal characterization tests at early age are, necessary for the exploitation of RG8 results, are provided by GINGER (see attached files).

Reports

File	Description
THM_cement.pdf	THM_plan_RG10
THM_ginger.pdf	THM_ginger
THM_gravel.pdf	THM_gravel
THM_sand.pdf	THM_sand
THM_superplasticizer.pdf	THM_superplasticizer

cheops.intranet.necs.fr/fydex/show/RG10/#materials-tab



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TMD_L_S_001 – RG10

Summary Geometry Materials **Procedures** Measures

Intro Environmental conditions Formwork and insulation

Procedure Name

Intro

Summary

The test is divided in two steps.
The structure is first subjected to a THM loading (temperature elevation in the isolated structure). It is placed in its environment (see environmental conditions in section 1) and the strains of the structure are globally restrained by the two struts. During the first 2 days after casting, the structure is isolated (see formwork and thermal isolation characteristics in section 2). Then the isolation and the formwork are removed and the structure is conserved during 1 month in the environment.

The test process was the following:

- 22 September 2010, 12:00: end of the casting
- 24 September 2010, in the morning: prestressing of the "heads" of the structure
- 24 September 2010, in the morning: removing the isolation and the formwork on all the faces
- 26 October 2010: static bending test

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TMD_L_S_001 – RG10

Summary Geometry Materials Procedures Measures

Intro Environmental conditions Formwork and insulation

Procedure Name
Formwork and insulation

Summary
The structure was isolated during the two first days after casting. We can distinguish two zones with isolation slightly different:

- Zone 1: upper and lower faces of the structure

Formwork
Isolation
Material
Plywood
Polystyrene
Thickness
2 cm 4 cm
Thermal conductivity
0.13 W/K.m 0.036 W/K.m

- Zone 2: lateral faces
The same materials were used (with the same thickness) but the formwork was reinforced by aluminium bars which creates weak points in the isolation.
A schema of the system of formwork and isolation for these lateral faces is presented in the next figure.

Formwork Isolation Weak points
Material Plywood Polystyrene Aluminium
Thickness 2 cm 4 cm - see schema

cheops.intranet.necs.fr/fydex/show/RG10/#procedure-3 036 W/K.m 237 W/K.m



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TMD_L_S_001 – RG10

Summary Geometry Materials Procedures Measures

Intro **Measurements** Analysis

Measure name

Measurements

Summary

The position of the different sensors used is available in the attached file "THM_instrumentation_RG10". The processed measurements obtained can be found in the file "THM_data_RG10".

Reports

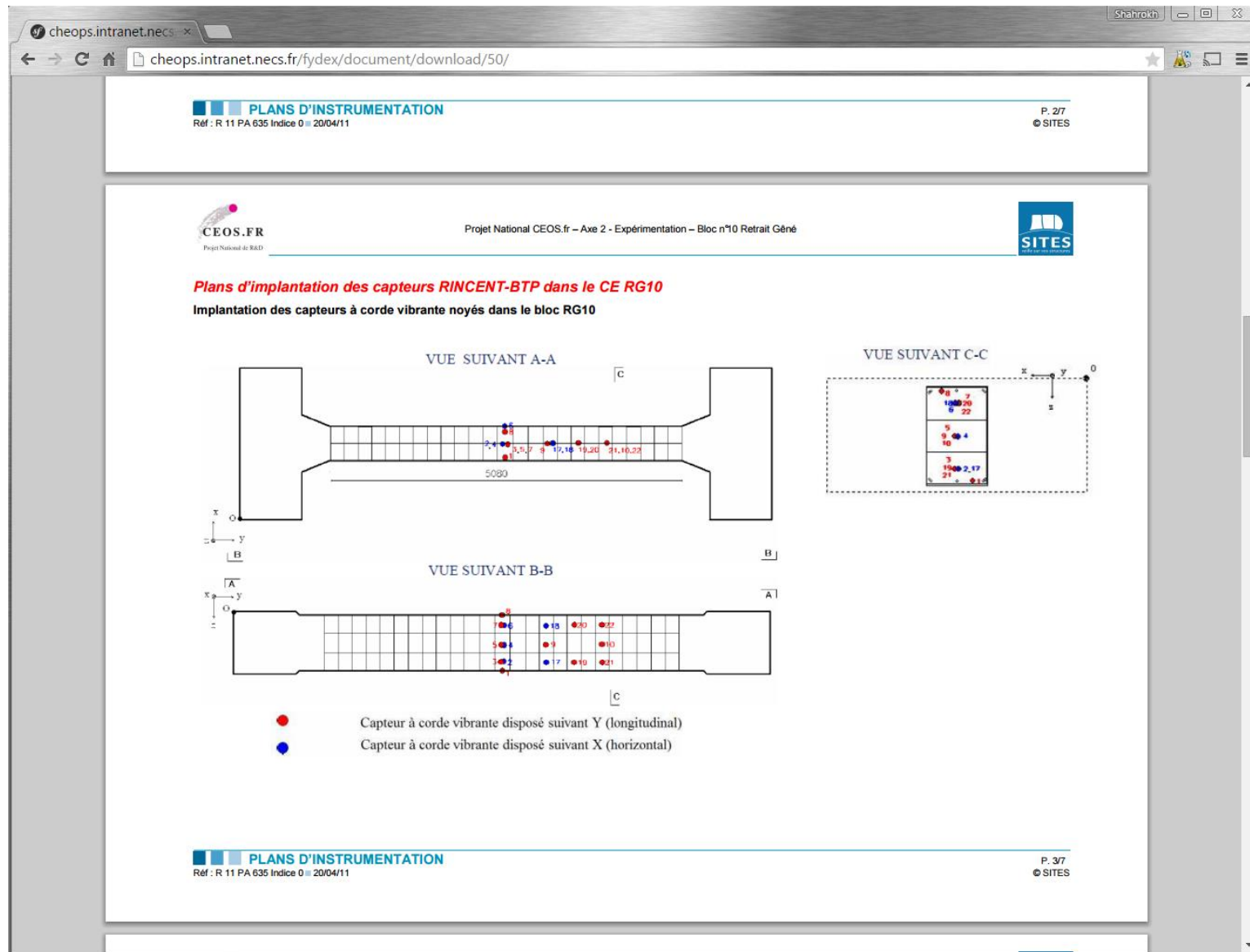
File	Description
THM_instrumentation_RG10.pdf	THM_instrumentation

Others

File	Description
THM_data_RG10.xls	THM_Data_RG10

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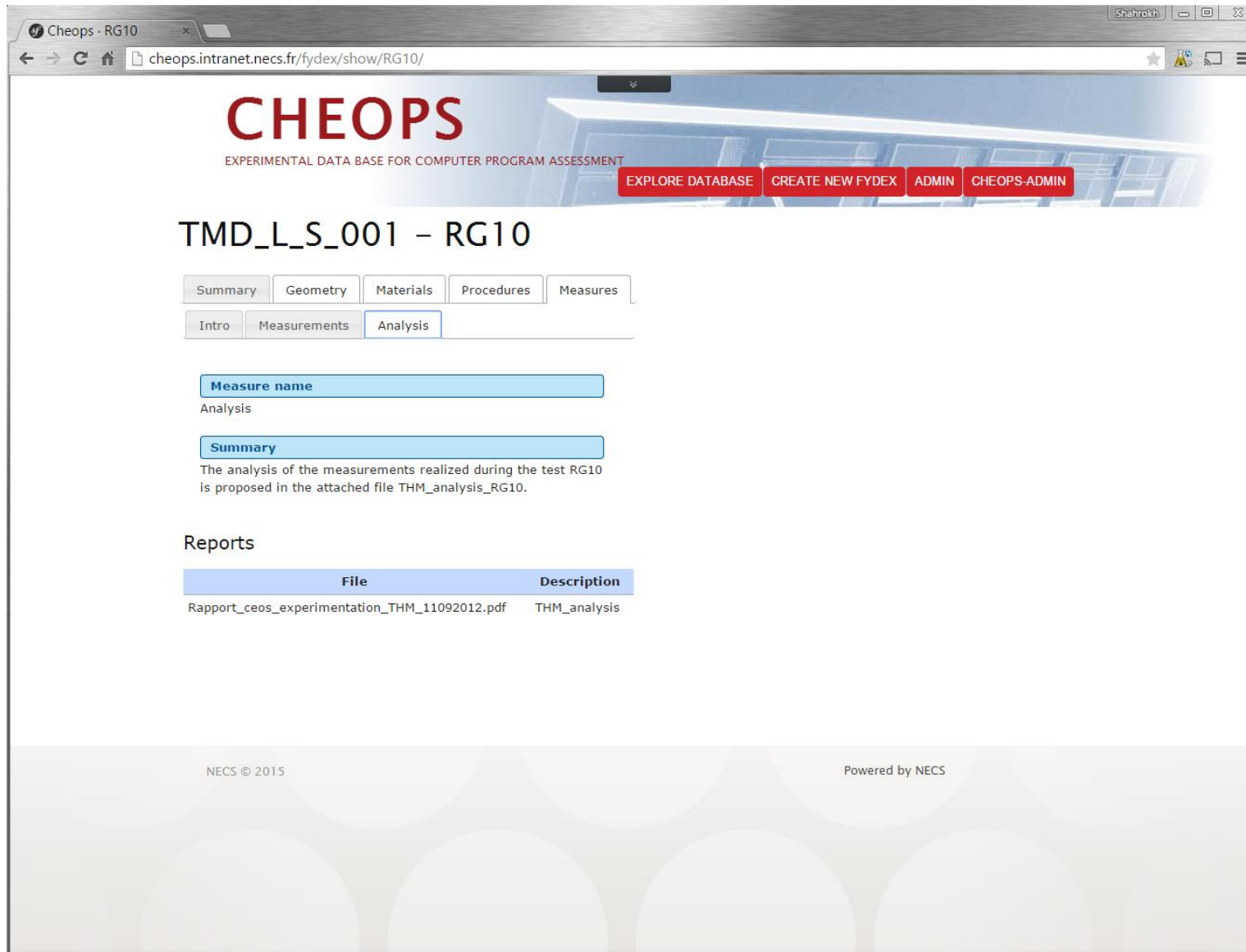
cheops.intranet.necs.fr/fydex/show/RG10/#measure-2



6e53a725be2effab1200df1aa1b04036a2844160.xls [Mode de compatibilité] - Microsoft Excel

Date et heure UTC															
1	Date et heure UTC	CVtemp(1)	CVtemp(2)	CVtemp(3)	CVtemp(4)	CVtemp(5)	CVtemp(6)	CVtemp(7)	CVtemp(8)	CVtemp(9)	CVtemp(11)	CVtemp(12)	CVtemp(13)	CVtemp(14)	CVtemp(15)
2	[]	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]
3	22/09/2010 08:00:00	11.86	12.34	12.5	13.93	13.92	15.08	15.05	15.88	13.82	14.38	22.22	18.58	28.7	
4	22/09/2010 08:10:00	12.05	12.61	12.95	14.52	14.48	15.83	15.72	16.66	14.49	14.49	22.26	18.54	28.59	
5	22/09/2010 08:20:00	12.58	13.17	13.47	15.46	15.45	16.95	16.73	17.71	15.24	14.64	22.33	18.65	28.71	
6	22/09/2010 08:30:00	12.98	13.76	13.92	16.17	16.16	18.03	17.81	19.95	15.98	14.71	22.33	18.58	28.67	
7	22/09/2010 08:40:00	13.84	14.55	14.92	17.28	17.2	18.89	18.67	22.6	17.18	14.97	22.37	18.73	28.52	
8	22/09/2010 08:50:00	14.55	15.33	15.71	17.88	17.95	19.33	19.19	21.63	17.66	15.23	22.48	18.65	28.4	
9	22/09/2010 09:00:00	15.29	16.15	16.53	19.07	18.99	22.09	22.59	22.19	18.67	15.46	22.48	18.69	28.22	
10	22/09/2010 09:10:00	16.23	17.12	17.42	19.89	19.89	25.45	24.68	23.49	19.67	15.76	22.52	18.8	28.07	
11	22/09/2010 09:20:00	17.12	17.97	18.39	20.98	20.93	27.5	26.24	24.76	20.72	16.13	22.7	18.8	27.92	
12	22/09/2010 09:30:00	17.68	18.5	18.92	21.76	21.57	29.18	27.51	25.8	21.28	16.61	22.74	18.84	27.88	
13	22/09/2010 09:40:00	18.24	19.13	19.51	22.43	22.24	30.27	28.52	29.13	21.88	16.95	22.82	18.95	27.88	
14	22/09/2010 09:50:00	19.29	20.29	20.63	23.4	23.1	30.79	29.04	30.32	22.88	16.99	22.96	18.99	27.73	
15	22/09/2010 10:00:00	24.28	24.13	24.55	24.78	24.89	31.87	30.28	28.79	24.79	17.21	23.04	19.13	27.66	
16	22/09/2010 10:10:00	24.06	24.28	24.7	24.89	24.92	32.95	30.31	28.9	24.94	17.4	23.19	19.21	27.58	
17	22/09/2010 10:20:00	23.99	24.32	24.66	24.97	25	29.15	26.43	28.57	25.01	17.96	23.34	19.28	27.47	
18	22/09/2010 10:30:00	24.1	24.43	24.7	25.08	25.22	29.93	27.59	30.55	25.2	18.4	23.49	19.32	27.36	
19	22/09/2010 10:40:00	24.06	24.35	24.74	25.08	25.22	26.31	26.21	25.81	25.12	18.25	23.52	19.55	27.43	
20	22/09/2010 10:50:00	24.1	24.43	24.7	25.23	25.3	26.16	26.06	26.25	25.23	18.63	23.71	19.66	27.32	
21	22/09/2010 11:00:00	24.14	24.35	24.7	25.27	25.45	26.23	26.1	26.48	25.38	18.63	23.86	19.73	27.43	
22	22/09/2010 11:10:00	24.14	24.5	24.77	25.42	25.45	26.27	26.1	26.59	25.38	19.07	24.01	19.92	27.28	
23	22/09/2010 11:20:00	24.14	24.5	24.7	25.49	25.52	26.31	26.17	26.85	25.46	19.45	24.16	19.96	27.28	
24	22/09/2010 11:30:00	24.14	24.47	24.77	25.57	25.56	26.38	26.17	27.07	25.53	19.52	24.38	20.14	27.43	
25	22/09/2010 11:40:00	24.28	24.54	24.77	25.57	25.6	26.5	26.32	27.22	25.61	19.3	24.68	20.25	27.43	
26	22/09/2010 11:50:00	24.28	24.54	24.85	25.68	25.71	26.61	26.39	27.3	25.64	18.1	24.83	20.4	27.43	
27	22/09/2010 12:00:00	24.17	24.58	24.85	25.64	25.82	26.65	26.62	27.34	25.68	17.47	24.75	20.48	27.51	
28	22/09/2010 12:10:00	24.29	24.54	24.88	25.75	25.82	26.76	26.62	27.52	25.79	17.36	24.87	20.55	27.43	
29	22/09/2010 12:20:00	24.29	24.61	24.88	25.83	25.93	26.87	26.69	27.6	25.83	18.66	24.83	20.48	27.58	
30	22/09/2010 12:30:00	24.47	24.58	24.96	25.94	25.89	26.91	26.84	27.67	25.79	18.89	24.9	20.55	27.77	
31	22/09/2010 12:40:00	24.43	24.69	25	25.98	25.97	27.06	26.92	27.75	25.98	18.85	24.98	20.55	27.73	
32	22/09/2010 12:50:00	24.47	24.76	25	25.94	26.04	27.2	26.92	27.82	26.05	19.37	25.13	20.7	27.81	
33	22/09/2010 13:00:00	24.51	24.73	25.03	26.05	26.04	27.21	27.03	27.9	25.98	19.49	25.28	20.78	27.81	
34	22/09/2010 13:10:00	24.55	24.73	25.03	26.16	26.16	27.35	27.07	28.01	26.09	19.6	25.28	20.96	27.84	
35	22/09/2010 13:20:00	24.66	24.8	25.11	26.09	26.27	27.35	27.25	28.01	26.09	19.89	25.43	20.96	27.73	
36	22/09/2010 13:30:00	24.66	24.91	25.07	26.2	26.19	27.43	27.36	28.04	26.17	19.82	25.65	21.3	27.81	
37	22/09/2010 13:40:00	24.7	24.88	25.11	26.28	26.3	27.5	27.25	28.12	26.24	20.04	25.87	21.37	27.88	

Données Bloc RG10



The screenshot shows a web browser window with the URL `cheops.intranet.necs.fr/fydex/show/RG10/`. The page header features the **CHEOPS** logo and the tagline "EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT". Navigation buttons include "EXPLORE DATABASE", "CREATE NEW FYDEX", "ADMIN", and "CHEOPS-ADMIN".

The main content area is titled "TMD_L_S_001 - RG10". It contains a series of tabs for navigation: "Summary", "Geometry", "Materials", "Procedures", "Measures", "Intro", "Measurements", and "Analysis". The "Analysis" tab is currently selected.

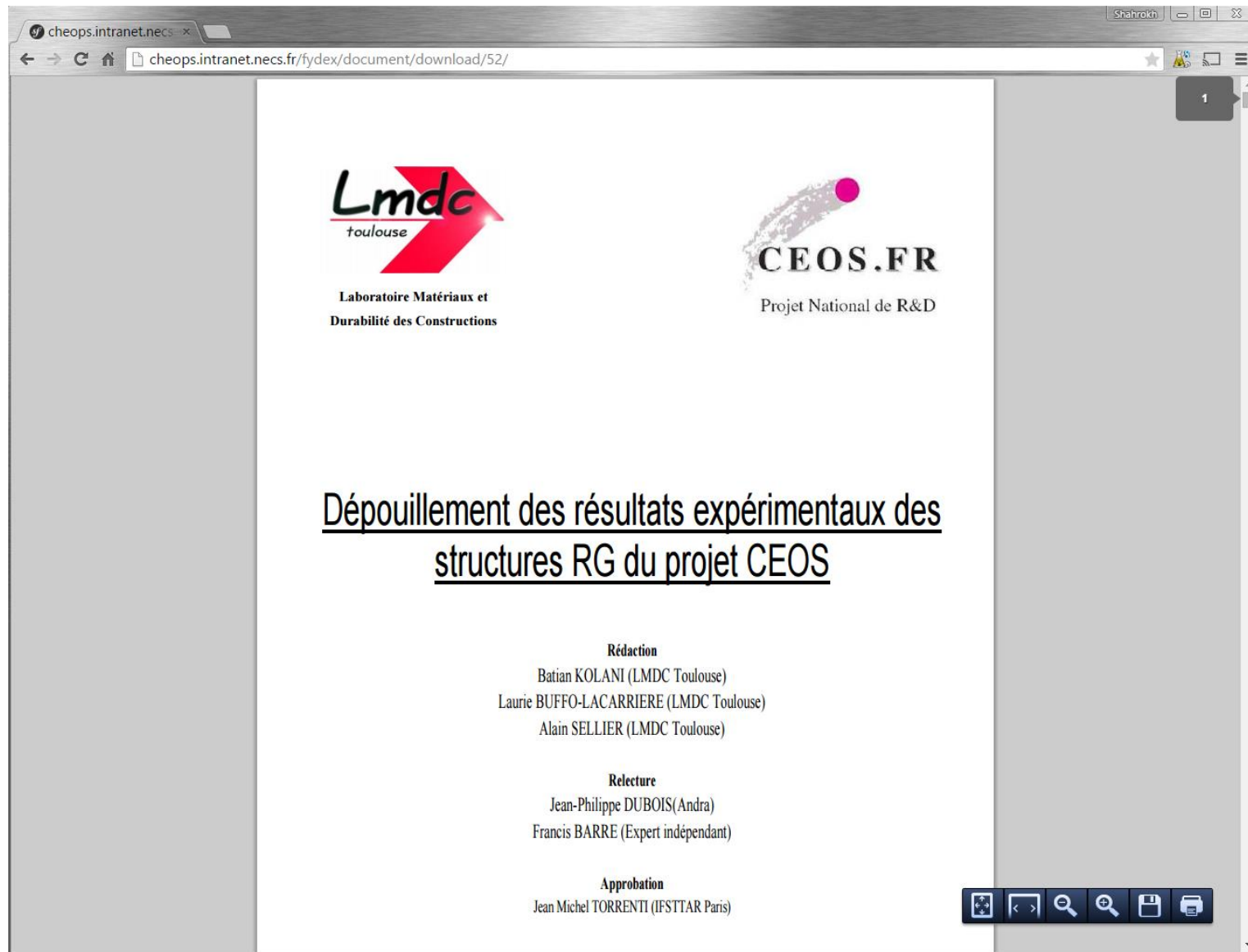
Under the "Analysis" tab, there are two sections:

- Measure name:** Analysis
- Summary:** The analysis of the measurements realized during the test RG10 is proposed in the attached file THM_analysis_RG10.

Below these sections is a "Reports" section containing a table with the following data:

File	Description
Rapport_ceos_experimentation_THM_11092012.pdf	THM_analysis

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