



Supplement of

Tracking geothermal anomalies along a crustal fault using $\rm (U-Th)/He$ apatite thermochronology and rare-earth element (REE) analyses: the example of the Têt fault (Pyrenees, France)

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Supplement Section

Supplement Section S.1 Fault outcrop



Figure 1. Photo of the Têt fault at Thuès-les-Bains station with interpretation of the fault zone below where Core Zone and Damage zone are distinguished (modified from Martin, 2014). Gneiss lenses are preserved near the fault contact and in the damage zone close to the fault.

Supplement Section S.2 Hot spring water analyses

10 Table 1. Anion et cation composition of hydrothermal hot springs (ST and PB: Saint-Thomas les Bains hot spring cluster, TB and CA: Thuès hot spring cluster, VB: Vernet-les-Bains,). In bold, data for water potentially mixed with meteoric water from the St-Louis hot spring in Thuès-les-Bains hot spring cluster (from Taillefer, 2017).

Cluster		Llo	ST		PB	TB			V	Ca.	
		Llo	Gd Source	Bar.1	Aig.1	St- Louis	Casc. Amont	Casc. Bas	Du Parc	Vap.	Gr. A - Riv.
Ca	mg/l	2.3	1.5	1.4	1.5	10.1	1.7	1.5	1.5	3	1.4
Mg	mg/l	<0.5	< 0.5	<0.5	<0.5	0.7	< 0.5	<0.5	<0.5	< 0.5	< 0.5
Na	mg/l	65.4	55.3	56.4	57	45.8	60.3	60.5	57.2	55.2	60.9
K	mg/l	1.8	1.4	1.3	1.5	1.8	2.4	2.3	1.8	1.9	2.3
NH_4	mg/l	0.25	0.29	0.32	0.33	< 0.05	0.3	0.29	0.2	0.12	0.29
CO_3	mg/l	21	30	30	33	<10	29	30	25	20	33
HCO_3	mg/l	29	27	31	29	91	34	32	39	45	31
Cl	mg/l	6.8	8.9	9.2	9.3	8.7	10	9.9	8.4	8.1	7.9
NO ₃	mg/l	< 0.5	< 0.5	< 0.5	<0.5	0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5
SO_4	mg/l	51	25.8	25.7	25.7	36.1	28.7	28.3	27.4	37.2	29.5
PO_4	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
NO_2	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
F	mg/l	17.5	7.4	7.7	7.8	5.3	7.9	7.9	6.9	6.7	7
Ag	$\mu g l^{-1}$	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Al	$\mu g l^{-1}$	6.53	23.5	18.2	24.3	6.15	39.5	60.2	21.3	14.1	31.4
As	$\mu g l^{-1}$	0.07	6.41	5.77	6.6	5.83	3.42	3.67	0.34	1.66	5.78
В	$\mu g l^{-1}$	96.3	109	107	124	221	272	293	301	305	157
Ba	$\mu g l^{-1}$	21.4	12.6	22.3	86.6	6.05	40.2	109	67.5	153	143
Be	$\mu g l^{-1}$	0.01	0.01	< 0.01	< 0.01	0.04	0.1	< 0.01	< 0.01	< 0.01	< 0.01
Cd	$\mu g l^{-1}$	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
\mathbf{Cr}	$\mu g l^{-1}$	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Cu	$\mu g l^{-1}$	< 0.1	< 0.1	< 0.1	<0.1	0.7	< 0.1	<0.1	< 0.1	< 0.1	< 0.1
Fe	$\mu g l^{-1}$	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Li	$\mu g l^{-1}$	95.3	78	80.1	81.3	71.1	87.7	87.7	69.5	75	93.9
Mn	$\mu g l^{-1}$	0.15	0.11	< 0.1	<0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Ni	$\mu g l^{-1}$	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1
Pb	$\mu g l^{-1}$	< 0.05	< 0.05	< 0.05	< 0.05	0.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
SiO ₂	$\mu g l^{-1}$	55.6	75.3	72.3	79.1	71.8	92.2	92.7	72.7	70.2	91.2
Sr	$\mu g l^{-1}$	67	21.9	25.8	20.5	57.8	29.8	28.8	43	75.9	31.9
Zn	$\mu g l^{-1}$	0.87	1.91	1.32	3.53	3.19	1.5	2.65	1.51	2.98	2.86

Supplement Section S.3 Apatite grains



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Figure 2. Photographs of apatite grains selected for (U-Th)/He analyses taken under binocular. Sample name is indicated on the upper left corner. Note that apatites are basically well preserved in the damage zone and outside damage zone.



Figure 3. REE patterns for Durango apatite standards, consistent with DurA analysis of Chew et al. (2016).

Table 2. Chondrite normalised REE content of dated apatite grains according to Sun and McDonough (1989).

No. No. <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Footwal</th> <th>l samples</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>									Footwal	l samples								
Image: 1.2 1.2 1.1 <th1.1< th=""> <th1.1< t<="" th=""><th></th><th>Name</th><th>AHe ages</th><th>La</th><th>Ce</th><th>Pr</th><th>Nd</th><th>Sm</th><th>Eu</th><th>Gd</th><th>Tb</th><th>Dy</th><th>Ho</th><th>Er</th><th>Tm</th><th>Yb</th><th>Lu</th><th>ΣREE</th></th1.1<></th1.1<>		Name	AHe ages	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	ΣREE
Image Image <th< th=""><th></th><th>TETL 2</th><th>22.2</th><th>122.0</th><th>462.8</th><th>95.7</th><th>480.5</th><th>222.5</th><th>77</th><th>281.0</th><th>72.2</th><th>443.0</th><th>76.7</th><th>167.3</th><th>20.0</th><th>00.5</th><th>12.0</th><th>2692.9</th></th<>		TETL 2	22.2	122.0	462.8	95.7	480.5	222.5	77	281.0	72.2	443.0	76.7	167.3	20.0	00.5	12.0	2692.9
Price No. No.<		TETL 2	26.1	176.4	402.8	105.1	489.5	200.0	0.0	457.9	95.5	502.0	81.2	170.6	10.8	99.5	11.2	2161.0
Image: state		TETT-3	30.1	1/0.4	582.3	105.1	583.2	283.5	8.8	457.8	85.5	502.9	81.2	170.6	19.8	93.5	11.3	3161.9
Partial Control Contro <thcontrol< th=""> <thcontrol< th=""> <thco< th=""><th></th><th>TETI-4</th><th>41.2</th><th>100.0</th><th>349.7</th><th>0.00</th><th>383.8</th><th>186.4</th><th>6.5</th><th>313.6</th><th>57.7</th><th>338.8</th><th>55.8</th><th>115.9</th><th>13.6</th><th>65.8</th><th>7.9</th><th>2061.5</th></thco<></thcontrol<></thcontrol<>		TETI-4	41.2	100.0	349.7	0.00	383.8	186.4	6.5	313.6	57.7	338.8	55.8	115.9	13.6	65.8	7.9	2061.5
App App<																		
Part 1000 10		TET1.1-1	4.0	19.6	67.4	13.1	76.9	38.2	2.4	62.8	11.5	67.0	10.8	22.7	2.6	13.1	1.6	409.6
Part Part Part Part Pa		TET1.1-2	2.2	31.7	103.4	19.6	112.4	54.4	3.4	85.6	15.6	91.3	15.2	32.2	3.8	19.8	2.3	590.8
Partial Bit Bi		TET1.1-4	21.1	67.5	241.6	42.4	233.0	108.0	3.1	168.4	31.6	188.9	31.1	64.9	7.8	40.6	4.6	1233.6
Physical Bit B		TET1.1-11	3.4	46.8	160.4	30.5	175.4	85.0	5.0	136.7	24.6	141.3	23.6	52.4	6.2	33.3	3.9	925.2
Phy Phy <th></th> <td>TET1 1-12</td> <td>1.1</td> <td>54.7</td> <td>181.8</td> <td>34.4</td> <td>202.7</td> <td>96.3</td> <td>5.4</td> <td>157.2</td> <td>28.4</td> <td>170.9</td> <td>30.5</td> <td>68.5</td> <td>8.1</td> <td>41.4</td> <td>5.0</td> <td>1085.1</td>		TET1 1-12	1.1	54.7	181.8	34.4	202.7	96.3	5.4	157.2	28.4	170.9	30.5	68.5	8.1	41.4	5.0	1085.1
nime nime <th< th=""><th>TET</th><td>TET1 1 12</td><td>10.6</td><td>127.2</td><td>411.1</td><td>74.6</td><td>412.5</td><td>102.9</td><td>12.0</td><td>207.5</td><td>54.6</td><td>325.0</td><td>57.0</td><td>127.2</td><td>15.0</td><td>86.4</td><td>10.2</td><td>2206.2</td></th<>	TET	TET1 1 12	10.6	127.2	411.1	74.6	412.5	102.9	12.0	207.5	54.6	325.0	57.0	127.2	15.0	86.4	10.2	2206.2
Trant This B<	Dr. Gla	1611.1-13	10.0	127.5	411.1	/4.0	415.5	195.8	12.0	297.3	.54.0	323.0	37.0	127.5	13.9	80.4	10.2	2200.2
Image Image <th< th=""><th>Frome</th><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	Frome																	
Image: state		TE12.1-1	10.3	28.9	101.8	20.5	125.8	43.2	4.9	55.3	7.7	44.4	8.9	22.1	2.8	15.8	2.3	484.4
Image: state		TET2.1-2	3.1	15.0	53.6	10.5	62.7	24.9	1.5	36.3	5.7	33.1	6.1	13.5	1.5	7.4	1.0	272.8
Image: biole in the sector in the s		TET2.1-4	5.6	26.4	83.8	16.0	97.2	33.1	3.3	42.8	6.4	38.5	7.8	20.1	2.7	15.6	2.2	395.9
No. No. <th></th> <td>TET2.1-11</td> <td>5.6</td> <td>26.6</td> <td>83.6</td> <td>16.5</td> <td>103.5</td> <td>39.0</td> <td>4.5</td> <td>51.5</td> <td>7.6</td> <td>45.3</td> <td>9.4</td> <td>25.2</td> <td>3.5</td> <td>18.7</td> <td>2.8</td> <td>437.5</td>		TET2.1-11	5.6	26.6	83.6	16.5	103.5	39.0	4.5	51.5	7.6	45.3	9.4	25.2	3.5	18.7	2.8	437.5
Part Bar Bar <th></th> <td>TET2.1-12</td> <td>6.3</td> <td>33.7</td> <td>111.8</td> <td>22.1</td> <td>140.6</td> <td>54.7</td> <td>5.3</td> <td>75.0</td> <td>11.3</td> <td>70.9</td> <td>14.9</td> <td>39.4</td> <td>5.4</td> <td>32.1</td> <td>4.5</td> <td>621.7</td>		TET2.1-12	6.3	33.7	111.8	22.1	140.6	54.7	5.3	75.0	11.3	70.9	14.9	39.4	5.4	32.1	4.5	621.7
Image Bits Bits <t< th=""><th></th><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>																		
HTM QA7 URD SUA Control Contro Contro Contro		TET5-2	23.1	91.6	307.0	54.2	295.3	137.5	3.9	213.6	39.6	233.7	38.3	80.6	9.4	48.4	5.7	1558.8
No. Lot Lot <thlot< th=""> <thlot< th=""> <thlot< th=""></thlot<></thlot<></thlot<>		TET5-4	20.7	108.3	361.4	65.2	353.5	164.0	4.9	258.8	49.4	296.2	49.3	105.0	12.4	64.1	77	1900.1
Cont Cont <th< th=""><th></th><th>1213 4</th><th>20.7</th><th>100.5</th><th>501.4</th><th>00.2</th><th>000.0</th><th>104.0</th><th>4.7</th><th>250.0</th><th></th><th>270.2</th><th>49.5</th><th>105.0</th><th>12.4</th><th>04.1</th><th></th><th>1900.1</th></th<>		1213 4	20.7	100.5	501.4	00.2	000.0	104.0	4.7	250.0		270.2	49.5	105.0	12.4	04.1		1900.1
CACE Control Control <thcontrol< th=""> <thcontrol< th=""> <thcont< th=""><th></th><td>GUDT 1</td><td></td><td>102.0</td><td>254.1</td><td></td><td>272.0</td><td>172.0</td><td>0.0</td><td>272.0</td><td>50.2</td><td>201.7</td><td>51.0</td><td>112.6</td><td>12.0</td><td>70.7</td><td>0.6</td><td>1061.4</td></thcont<></thcontrol<></thcontrol<>		GUDT 1		102.0	254.1		272.0	172.0	0.0	272.0	50.2	201.7	51.0	112.6	12.0	70.7	0.6	1061.4
shore Cores 1	CUD	CAR/-I	11.2	102.0	354.1	00.1	3/3.9	172.9	9.8	272.0	50.3	301.7	51.8	113.0	13.9	/0./	8.0	1961.4
orgen Quest Bit	CAR	CAR/-2	7.6	31.1	109.4	20.7	123.5	58.7	4.1	95.3	17.0	100.4	16.9	35.8	4.1	19.8	2.4	639.0
Cont-3 Cont-3 <thcon-3< t<="" th=""><th>sample</th><td>CAR7-3</td><td>10.4</td><td>47.2</td><td>144.9</td><td>25.9</td><td>147.1</td><td>68.9</td><td>3.8</td><td>107.5</td><td>19.6</td><td>117.1</td><td>19.9</td><td>44.4</td><td>5.5</td><td>29.6</td><td>3.6</td><td>785.0</td></thcon-3<>	sample	CAR7-3	10.4	47.2	144.9	25.9	147.1	68.9	3.8	107.5	19.6	117.1	19.9	44.4	5.5	29.6	3.6	785.0
Conce 13.1 0.76 21.3 14.0 24.0 21.0 24.0 21.0 24.0 21.0 24.0 21.0 24.0 21.0 24.0 21.0 24.0 21.0 24.0 <		CAR7-4	12.4	111.4	370.8	67.9	387.9	175.9	12.6	283.5	51.6	310.5	53.8	119.0	14.1	72.7	9.0	2040.7
OC:0 0.15 <t< th=""><th></th><td>CAR7-5</td><td>13.8</td><td>67.6</td><td>223.5</td><td>41.0</td><td>236.3</td><td>108.6</td><td>6.6</td><td>170.3</td><td>30.5</td><td>179.1</td><td>30.3</td><td>63.7</td><td>7.0</td><td>32.7</td><td>3.9</td><td>1201.1</td></t<>		CAR7-5	13.8	67.6	223.5	41.0	236.3	108.6	6.6	170.3	30.5	179.1	30.3	63.7	7.0	32.7	3.9	1201.1
		CAR7-6	14.3	131.4	453.4	82.5	462.0	218.4	7.9	338.1	62.8	374.2	64.9	144.2	17.9	98.6	11.5	2467.7
	1	1																
	1	GAL7-1	10.6	52.3	153.6	27.1	152.6	41.6	6.1	55.4	7.2	41.8	8.6	22.2	3.1	20.1	3.6	595.4
Control Control Bital		GAL7-2	10.0	239.8	675.5	108.8	554.9	149.2	13.7	177.4	25.0	145.9	29.8	73.4	9.7	56.3	8.7	2268.1
Ch12 Dit 1 No.1 Solid S		GAL7-3	10.6	181.1	507.9	80.6	413.0	104.8	15.8	122.9	16.2	94.1	19.7	52.1	73	47.4	83	1671.3
mm mm<	GAT	GAL7.4	10.1	86.9	256.6	45.0	280.2	142.2		321.5	65.2	479.0	108.2	290.9	42.6	272 8	3.5	2446.9
mate bits bits <th< th=""><th>Dr-m.</th><td>0AL/-4</td><td>10.1</td><td>00.0</td><td>2.70.0</td><td>43.9</td><td>200.5</td><td>1-42.2</td><td>9.2</td><td>321.3</td><td>03.2</td><td>476.0</td><td>100.2</td><td>299.0</td><td>+J.0</td><td>212.0</td><td>50.7</td><td>2440.0</td></th<>	Dr-m.	0AL/-4	10.1	00.0	2.70.0	43.9	200.5	1-42.2	9.2	321.3	03.2	476.0	100.2	299.0	+J.0	212.0	50.7	2440.0
ch.1.3 i.1.4 00.0 2.2.4 4.9 2.0.4 0.1.5	Profile	laure		00.5		10.0		<i></i>		107.0		R C T	15.0	22.5		26.7		10.2.
Char 1 Char 2 Char 2 <thchar 2<="" th=""> <thchar 2<="" t<="" th=""><th></th><td>GAL3-1</td><td>14.1</td><td>90.0</td><td>252.2</td><td>43.9</td><td>246.0</td><td>68.4</td><td>9.2</td><td>125.0</td><td>14.5</td><td>79.5</td><td>15.8</td><td>33.5</td><td>4.5</td><td>26.7</td><td>4.3</td><td>1013.4</td></thchar></thchar>		GAL3-1	14.1	90.0	252.2	43.9	246.0	68.4	9.2	125.0	14.5	79.5	15.8	33.5	4.5	26.7	4.3	1013.4
Della 3 8.6 120. 97.2 64.3 12 127 135 77.7 14.1 92.0 40.2 12.0 40.2 12.0 40.2 12.0 40.2 12.0 40.2 12.0 40.2 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 10.0 13.0 13.0 10.0 13.0 10.0 13.0 1		GAL3-2	10.8	58.5	162.8	28.0	158.4	44.4	5.5	84.1	9.3	48.4	9.4	18.9	2.5	13.3	2.2	645.7
CNL3-4 CNL3-4<		GAL3-3	8.6	120.8	307.9	49.5	259.2	66.8	8.2	124.7	13.5	71.7	14.1	30.0	4.0	21.2	3.6	1095.3
State 112 124 142 135 </th <th></th> <td>GAL3-4</td> <td>10.6</td> <td>116.0</td> <td>297.8</td> <td>49.0</td> <td>258.1</td> <td>65.2</td> <td>9.1</td> <td>113.6</td> <td>13.1</td> <td>70.6</td> <td>14.2</td> <td>29.3</td> <td>3.9</td> <td>23.4</td> <td>3.8</td> <td>1067.1</td>		GAL3-4	10.6	116.0	297.8	49.0	258.1	65.2	9.1	113.6	13.1	70.6	14.2	29.3	3.9	23.4	3.8	1067.1
First 11:5 <t< th=""><th></th><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		7																
First First <th< th=""><th></th><td>ST15-1</td><td>11.2</td><td>12.6</td><td>41.7</td><td>9.7</td><td>81.9</td><td>69.9</td><td>4.2</td><td>178.4</td><td>37.5</td><td>278.7</td><td>63.6</td><td>169.4</td><td>22.2</td><td>126.1</td><td>16.1</td><td>1111.9</td></th<>		ST15-1	11.2	12.6	41.7	9.7	81.9	69.9	4.2	178.4	37.5	278.7	63.6	169.4	22.2	126.1	16.1	1111.9
First Line Line <thline< th=""> Line Line <th< th=""><th> </th><th>ST15-2</th><th>12.3</th><th>40.2</th><th>139.5</th><th>26.4</th><th>155.4</th><th>72.7</th><th>27</th><th>108.5</th><th>18.8</th><th>109.1</th><th>19.3</th><th>44 3</th><th>6.2</th><th>38.5</th><th>47</th><th>786 3</th></th<></thline<>		ST15-2	12.3	40.2	139.5	26.4	155.4	72.7	27	108.5	18.8	109.1	19.3	44 3	6.2	38.5	47	786 3
STIP-1 15.2 64.4 92.8 81.4 92.4 93.4 92.2 93.5 94.5 <		5115-2	12.5	40.2	159.5	20.4	155.4	12.1	2.7	108.5	10.0	109.1	19.5	44.5	0.2	56.5	4.7	780.5
State Bits Bits <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>																		
Ni-b Di-D Di-D <thdi-d< th=""> Di-D Di-D <thd< th=""><th></th><th>5116-1</th><th>12.5</th><th>44.4</th><th>157.2</th><th>30.8</th><th>181.6</th><th>92.8</th><th>3.3</th><th>143.9</th><th>26.2</th><th>153.4</th><th>25.9</th><th>56.2</th><th>6.8</th><th>35.9</th><th>4.3</th><th>962.8</th></thd<></thdi-d<>		5116-1	12.5	44.4	157.2	30.8	181.6	92.8	3.3	143.9	26.2	153.4	25.9	56.2	6.8	35.9	4.3	962.8
STIA 3 STIA 3 STIA 4 STIA 3 STIA 5 STIA 5<		ST16-2	15.2	64.4	236.4	46.4	275.0	140.1	5.0	212.4	39.3	234.7	39.7	88.5	11.0	58.1	6.8	1457.9
Prof. 144 0.9 32.0 38.0 19.5 91.0 4.2 19.1 92.0 19.2 19.2 19.2 ST2.1 143 19.2 19.0 33.0 32.0 32.2 22.6 19.0 19.2 19.0 13.5 19.2 19.0 13.6 19.7 20.8 19.2 19.0 13.6 19.7 20.8 19.2 19.0 13.6 19.7 20.8 19.2 19.0 33.6 19.2 19.0 13.6 19.7 20.2 19.0 19.2 19.0 19.2 19.0 19.2 19.0 19.2 19.0		ST16-3	15.2	81.5	290.8	56.4	341.0	160.8	6.0	240.6	43.2	263.7	47.3	110.6	15.1	93.7	11.6	1762.1
ST-1 16.4 6.9 21.30 38.9 21.95 98.3 4.5 17.4 2.2 18.01 27.4 6.6.2 8.5 4.7.6 5.5 110.18 ST-2 14.31 11.72 47.3 40.3 12.7 10.3 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>																		
ST22 14.8 11.72 41.72 77.3 46.83 20.7 48.8 20.7 58.0 41.67 16.6 11.9 12.3 58.0 16.7 16.9 10.9 19.9 22.35 20.00 13.0 13.0 20.00 13.0 20.00 13.0 13.0 20.00 13.0 13.0		ST2-1	16.4	63.9	213.0	38.9	219.5	98.3	4.5	134.1	24.2	150.1	27.4	66.2	8.5	47.6	5.5	1101.8
Final Image Image <th< th=""><th></th><td>ST2-2</td><td>14.8</td><td>117.2</td><td>407.2</td><td>79.3</td><td>460.8</td><td>203.4</td><td>8.2</td><td>274.6</td><td>48.8</td><td>305.7</td><td>58.0</td><td>140.7</td><td>18.6</td><td>101.0</td><td>11.9</td><td>2235.6</td></th<>		ST2-2	14.8	117.2	407.2	79.3	460.8	203.4	8.2	274.6	48.8	305.7	58.0	140.7	18.6	101.0	11.9	2235.6
PT24 924 1942 1956 1475 903 1710 903 1733 1733 1733 1733 1734 1744 1134 027 7.5 10181 ST 1757 1577 2014 1533 1533 153 1533 153		ST2-3	12.1	2569.6	3300.4	331.0	1307.4	388.3	22.4	539.0	96.5	598.9	112.9	269.0	33.6	174.2	20.8	9763.8
str.s iss.s iss.s <th< th=""><th></th><td>ST2-4</td><td>9.2</td><td>1294.2</td><td>1576.7</td><td>147.5</td><td>563.5</td><td>143.5</td><td>9.1</td><td>171.0</td><td>29.0</td><td>179.3</td><td>33.9</td><td>84.4</td><td>11.3</td><td>62.7</td><td>7.5</td><td>16418.1</td></th<>		ST2-4	9.2	1294.2	1576.7	147.5	563.5	143.5	9.1	171.0	29.0	179.3	33.9	84.4	11.3	62.7	7.5	16418.1
Struit CT2.6 16.3 137.3 497.4 93.4 93.4 232.5 9.1 393.3 53.5 338.1 62.0 10.7 20.4 100.6 13.1 234.1 F14-1 16.5 146.7 46.41 82.0 40.7 20.3 11.1 31.69 64.0 93.0 83.1 12.46 15.2 78.5 91.1 23.32 571.3 16.5 141.7 79.2 90.3 48.7 79.4 454.3 71.4 12.44 12.4 12.5 13.2 342.7 71.4 20.3 16.2 10.3 34.7 79.4 454.3 71.4 13.4 14.4 24.6 13.2 13.2 342.7 71.4 20.6 10.3 13.2 20.3 13.4 24.4 14.4 24.6 13.2 13.2 34.2 13.2 13.2 13.2 13.2 13.2 13.2 13.2 13.2 13.2 13.2 13.2 13.2 13.2		ST2 5	15.7	240.6	922.6	156.3	870.0	334.6	13.2	415.9	72.2	465.5	89.6	228.6	31.6	194.7	22.2	2060.5
Profit First First <t< th=""><th>eT</th><td>ST2-5</td><td>16.2</td><td>127.5</td><td>497.4</td><td>02.1</td><td>524.7</td><td>334.0</td><td>0.1</td><td>415.8</td><td>52.5</td><td>229.1</td><td>62.0</td><td>151.7</td><td>20.4</td><td>109.7</td><td>12.1</td><td>2544.1</td></t<>	eT	ST2-5	16.2	127.5	497.4	02.1	524.7	334.0	0.1	415.8	52.5	229.1	62.0	151.7	20.4	109.7	12.1	2544.1
The image ima	51	512-0	10.5	137.5	487.4	93.1	534.7	228.5	9.1	305.3	53.5	338.1	62.0	151./	20.4	109.6	13.1	2544.1
ST4-1 10.5 14.67 464.1 82.0 41.07 2033 11.1 316.9 64.0 377.0 88.1 124.6 12.2 77.5 9.1 2337.0 ST4-1 16.3 181.0 277.2 29.3 10.0 307.0 98.1 10.4 25.4 10.4 25.4 77.5 97.1 10.9 77.2 10.9 77.1 10.9 77.1 10.9 77.1 10.9 77.1 10.9 77.1 87.8 10.9 77.2 10.8 10.9 77.0 6.6 175.5 ST4-1 21.6 19.5 62.66 11.3 62.4 306.3 99 48.6 97.1 54.7 72.9 10.0 10.0 70.0 10.0 70.0 10.0 10.0 17.0 20.1 10.0 10.0 17.0 10.1 10.0 10.0 17.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	Profile																	
ST4-2 17.2 242.6 751.6 751.4 10.2 751.4 10.2 151.7 75.2 99.1 11.2 35.4 10.0 99.1 11.4 281.0 ST4-4 16.3 151.0 47.2 80.9 40.1 12.3 38.4 77.4 44.4 77.8 87.4 42.7 99.1 14.4 281.0 77.0 67.4 42.7 18.0 10.0 77.0 67.6 10.0 230.0 10.0 31.6 64.1 30.3 78.9 27.4 43.5 77.1 18.0 12.0 13.3 32.0.7 10.0 17.8 88.6 12.0 27.0 38.7 10.0 10.0 10.0 10.0 10.0 27.1 10.0 27.0 10.0 27.1 14.3 10.0 10.1 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0		ST4-1	16.5	146.7	464.1	82.0	410.7	205.3	11.1	316.9	64.0	367.0	58.1	124.6	15.2	78.5	9.1	2353.2
ST4-3 16.5 11.1 7T×2 91.0 47.5 249.7 12.3 38.47 79.4 45.3 71.8 15.4 19.0 99.1 11.4 281.9 ST4-5 20.0 108.2 304.8 00.0 30.9 30.9 30.9 20.0 30.9 20.0 30.9 20.0 30.9 20.0 30.9 20.0 30.9 20.0 30.9 20.0 30.9 20.0 72.0 389.2 71.4 45.5 89.1 10.0 10.0 10.0 40.0 20.0 27.0 389.2 71.4 45.5 87.1 49.0 10.5 40.2 270.6 27.0 10.0		ST4-2	17.2	242.6	751.6	126.3	624.1	305.6	15.5	482.1	99.8	577.3	93.1	204.6	25.4	136.4	15.8	3700.3
ST44 ST44 S124 S124 <th< th=""><th></th><td>ST4-3</td><td>16.5</td><td>181.7</td><td>578.2</td><td>99.1</td><td>487.5</td><td>249.7</td><td>12.3</td><td>384.7</td><td>79.4</td><td>454.3</td><td>71.8</td><td>153.4</td><td>19.0</td><td>99.1</td><td>11.4</td><td>2881.9</td></th<>		ST4-3	16.5	181.7	578.2	99.1	487.5	249.7	12.3	384.7	79.4	454.3	71.8	153.4	19.0	99.1	11.4	2881.9
ST4-5 20.3 08.2 39.8 60.5 30.3 157.1 8.3 240.3 48.9 77.4 42.7 89.8 1.00 57.0 6.6 178.5 ST8-1 21.6 191.5 62.6 11.31 62.4 22.0 72.0 38.2 74.1 43.85 71.2 150.9 17.4 88.6 12.0 13.1 14.2 13.3 420.7 ST8-1 17.6 18.0 477.5 92.0 24.6 9.4 194.8 87.6 13.0 13.1 14.2 13.4 14.1 166.0 12.7 78.8 13.0 24.0 14.1 13.1 25.7 14.6 87.7 14.6 17.7 14.4 17.9 17.3 14.4 13.1 24.7 15.4 13.8 27.6 14.6 87.0 14.6 87.0 14.8 17.9 17.3 15.4 14.3 12.2 15.4 14.0 12.0 14.0 12.0 14.0 12.0 14.0		ST4-4	16.2	151.0	474.2	80.9	402.1	203.6	10.7	317.6	64.1	365.3	56.8	122.1	14.9	76.6	9.0	2349.0
Profest Profest <t< th=""><th></th><td>ST4-5</td><td>20.3</td><td>108.2</td><td>349.8</td><td>60.5</td><td>303.9</td><td>157.1</td><td>8.3</td><td>240.3</td><td>48.9</td><td>274.4</td><td>42.7</td><td>89.8</td><td>11.0</td><td>57.0</td><td>6.6</td><td>1758.5</td></t<>		ST4-5	20.3	108.2	349.8	60.5	303.9	157.1	8.3	240.3	48.9	274.4	42.7	89.8	11.0	57.0	6.6	1758.5
str.i 21.6 91.5 62.6 13.1 62.4 30.6 9.1 44.15 89.1 18.9 12.6 13.2 13.3 320.7 str.3 19.4 135.0 47.5 89.1 50.3 22.5 92.4 39.48 77.9 167.0 10.5		1																
STN-2 10.8 11.37 47.50 90.6 51.22 22.0 72.1 44.55 77.2 10.05 77.3 10.05 77.5 10.05 77.5 10.05 11.2 20.05 10.05 </th <th></th> <td>ST8-1</td> <td>21.6</td> <td>191.5</td> <td>626.6</td> <td>113.1</td> <td>624 5</td> <td>306.3</td> <td>99</td> <td>486.6</td> <td>93.1</td> <td>541.5</td> <td>89.1</td> <td>189 3</td> <td>22.6</td> <td>113.2</td> <td>133</td> <td>3420.7</td>		ST8-1	21.6	191.5	626.6	113.1	624 5	306.3	99	486.6	93.1	541.5	89.1	189 3	22.6	113.2	133	3420.7
Str.3 1:5.4 1:5.6 1:5.6 1:5.6 1:5.6 1:5.6 1:5.6 1:5.7 1:5.8 1:5.7 1:5.8 <th< th=""><th></th><td>ST8-2</td><td>19.8</td><td>133.7</td><td>475.0</td><td>90.6</td><td>512.6</td><td>252.0</td><td>7.2</td><td>389.2</td><td>74.1</td><td>435.8</td><td>71.2</td><td>150.9</td><td>17.8</td><td>88.6</td><td>10.2</td><td>2708.9</td></th<>		ST8-2	19.8	133.7	475.0	90.6	512.6	252.0	7.2	389.2	74.1	435.8	71.2	150.9	17.8	88.6	10.2	2708.9
Nume Loss Loss <thloss< th=""> Loss Loss <thl< th=""><th></th><td>ST8-2</td><td>19.0</td><td>138.0</td><td>477 5</td><td>90.0 80.1</td><td>500.9</td><td>232.0</td><td>0.4</td><td>309.2</td><td>75.6</td><td>433.0</td><td>77.0</td><td>167.2</td><td>20.1</td><td>105.4</td><td>12.6</td><td>2708.9</td></thl<></thloss<>		ST8-2	19.0	138.0	477 5	90.0 80.1	500.9	232.0	0.4	309.2	75.6	433.0	77.0	167.2	20.1	105.4	12.6	2708.9
sixe- 1.0 20.2 88.4 100.9 91.4 63.5 (4.1 09.00 12.7 78.5 10.0.2 2/4.0 51.5 (4.5) (4.1) (4.5) <th></th> <td>S10-5</td> <td>17.4</td> <td>150.0</td> <td></td> <td>160.0</td> <td>200.8</td> <td>421.0</td> <td>9.4</td> <td>574.0</td> <td>122.7</td> <td>937.9</td> <td>120.2</td> <td>107.3</td> <td>20.1</td> <td>103.4</td> <td>12.0</td> <td>40.000</td>		S10-5	17.4	150.0		160.0	200.8	421.0	9.4	574.0	122.7	937.9	120.2	107.3	20.1	103.4	12.0	40.000
PLA 1 12.4 83.4 255.1 47.4 281.2 136.3 4.2 228.4 43.1 286.7 56.5 144.5 20.1 117.7 14.8 179.5 PLAS 112.7 27.5 92.3 18.6 122.1 66.9 2.0 113.4 20.3 131.8 257.7 64.6 8.9 52.4 6.8 757.2 PLAS-1 17.1 17.23 596.1 112.2 64.0 329.7 7.7 51.40 94.4 55.2 18.9 92.5 19.0 23.8 12.0 14.5 32.0 34.1 32.4 48.1 82.6 18.0 52.1 19.0 23.8 12.0 14.5 34.1 34.4 34.1 32.1 44.8 34.6 20.0 10.1 12.1 13.1 290.6 23.4 23.7 74.4 44.11 82.1 48.8 82.6 18.0 21.5 11.1 13.1 29.0 21.5 11.1 21.3 29.0		310-4	17.0	200.2	004.4	100.9	691.4	451.8	14.1	090.0	132.7	/ 68.5	150.2	274.0	21.8	134./	18.1	4008.8
PLA. II.2.4 8.84 255.1 47.4 281.2 136.3 4.2 228.6 355.5 144.5 20.1 II.7.7 I4.8 171.5 PLA. PLA. 27.5 92.3 186.6 122.1 66.9 2.0 112.3 20.3 138.4 25.5 61.6 15.9 58.4 80.3 PLA. PLA.2-1 147.1 172.3 59.61 112.2 64.0 29.7 7.7 514.0 94.4 554.8 92.5 19.0 23.8 12.0 94.4 543.8 12.0 94.4 543.8 12.0 94.4 12.3 12.1 12.0 13.0 380.8 74.6 44.7 24.5 381.9 92.2 396.8 65.0 13.8.3 16.0 20.0 94.4 21.4 88.1 20.0 18.3 20.0 94.4 21.3 290.8 21.3 290.8 20.1 21.3 290.8 20.2 21.3 290.8 20.2 20.3 20.3		ha																
PLA:2 12.7 12.7 92.3 18.6 12.1 66.9 2.0 11.3 20.3 131.8 2.7 64.6 8.9 52.4 6.8 752.3 PLA:4 14.5 73.4 135.4 134.4 24.7 158.4 30.8 76.6 10.5 61.9 65.0 61.9 8.0 793.3 PLA:4 14.5 73.3 56.1 112.2 64.0 329.7 7.7 51.0 94.2 554.8 92.5 99.0 23.8 102.2 14.5 347.5 PLA:2 14.4 105.0 380.8 74.6 447.7 154.4 486.4 447.7 144.5 12.4 68.6 70.0 163.4 100.2 11.2 13.1 290.8 PLA:2 14.4 15.4 486.7 27.7 6.0 445.3 81.2 468.6 70.0 16.1 12.2 91.1 12.3 291.0 PLA:2 14.0 59.1 27.3 7.4	1	PLA3-1	12.4	83.4	255.1	47.4	281.2	136.3	4.2	228.4	43.1	286.7	56.5	144.5	20.1	117.7	14.8	1719.5
PLA PLA 14.8 34.4 12.8 21.3 15.0 81.3 2.4 12.4 24.2 15.4 30.8 76.6 10.5 61.9 80.9 99.3 Profile PLA2-1 17.1 172.3 956.1 112.2 60.6 32.7 51.4 96.2 312.7 61.0 12.5 12.0 91.8 247.3 PLA2-1 17.1 172.3 956.1 112.2 60.6 32.7 6.0 94.4 51.8 92.5 199.0 23.8 10.2 14.8 20.0 94.2 272.3 7.0 12.0 44.13 81.0 96.8 18.2 48.8 26.5 18.0 10.5 10.1 10.1 10.1 10.1 10.1 10.1 20.1 20.1 20.1 20.2 24.1 27.6 27.5 31.1 11.0 10.5 41.1 10.1 10.3 10.5 10.1 10.1 10.3 10.3 10.5 10.1 10.1 10.1	1	PLA3-2	12.7	27.5	92.3	18.6	122.1	66.9	2.0	112.3	20.3	131.8	25.7	64.6	8.9	52.4	6.8	752.2
Profile Pra3-4 14.5 70.9 237.1 46.4 292.6 157.5 4.6 262.3 48.2 312.7 61.1 152.5 21.1 120.9 15.8 1803.8 Profile PLA2-1 17.1 172.3 596.1 112.2 640.6 32.97 7.7 531.9 94.4 554.8 92.5 199.0 23.8 120.2 14.5 371.3 200.8 77.7 534.1 82.2 48.6 78.0 183.4 20.0 13.1 290.6 PLA2-3 19.1 15.7 13.44 92.0 546.2 27.3 7.6 445.3 81.2 48.0 7.0 16.8 7.0 48.1 21.5 11.1 21.0 10.1 12.0 10.1 12.0 10.1 12.0 16.1 12.0 16.1 12.0 17.0 14.0 92.1 18.1 83.0 16.0 56.5 34.0 66.2 10.0 16.0 16.0 16.0 16.0 16.0	1	PLA3-3	14.8	38.4	123.8	24.3	155.0	81.3	2.4	134.4	24.7	158.4	30.8	76.6	10.5	61.9	8.0	930.3
Profile ILA2-1 II.1 II.2 Soft 1 II.2 60 329.7 7.7 514.0 94.4 554.8 92.5 19.0 33.8 16.5 82.0 98.8 317.5 HA2-1 17.1 173.0 380.9 440.7 243.5 6.5 381.9 69.2 396.8 65.0 18.3 16.5 82.0 98.8 21.5 HA2-4 15.7 134.4 484.9 92.0 534.2 27.7 6.0 445.3 81.2 468.6 78.0 108.4 20.0 104.1 12.3 291.6 TETM 30.6 285.6 98.6 182.6 987.6 67.6 67.6 181.4 808.0 145.8 35.5 49.3 264.2 32.5 55.4 TETM 30.6 285.6 98.6 182.6 987.7 184.9 94.2 182.9 117.6 21.6 514.0 77.7 32.7 145.9 183.9 17.6 21.6 514.0	PLA	PLA3-4	14.5	70.9	237.1	46.4	292.6	157.5	4.6	262.3	48.2	312.7	61.1	152.5	21.1	120.9	15.8	1803.8
RL2-1 17.1 17.3 596.1 11.22 640.6 329.7 7.7 514.0 944 554.8 92.5 199.0 23.8 12.0.2 14.5 3471.5 RL2-3 19.1 130.0 480.9 94.9 546.2 272.3 7.4 441.1 82.1 48.6 78.0 16.5 21.5 11.1.2 13.1 290.0 PLA2-1 15.7 134 48.4 92.0 53.2 27.7 6.0 441.3 82.1 48.6 78.0 16.8 76.0 48.5 81.2 48.6 78.0 16.8 76.0 17.0 Nd. S7.0 78.0 77.0 78.0 77.0 77.0 77.0 77.0 79.0 77.0 79.0 77.0 <th>Profile</th> <td>1</td> <td></td>	Profile	1																
PLA22 14.8 105.0 30.8 74.6 447.7 243.5 6.5 381.9 60.2 39.6 65.0 138.3 16.5 82.0 9.8 2417.5 PLA2-3 19.1 13.0.0 480.9 94.9 546.2 272.3 7.4 441.1 488.1 82.6 180.5 21.5 111.2 13.1 2960.8 Term V-2 13.4 444.4 444.1 482.1 448.6 78.0 168.7 104.1 12.3 2916.7 Term V-2 13.6 Ce Pr Nd Sme Ce T Vb Lu ZEEE Term V-2 23.6 47.6 182.6 987.4 471.7 16.8 676.8 131.4 808.0 145.8 365.5 49.3 261.2 22.5 541.6 TErm W-4 45.6 387.5 132.9 231.7 1248.0 508.2 159.7 73.2 144.2 201.3 131.5 541.6		PLA2-1	17.1	172.3	596.1	112.2	640.6	329.7	7.7	514.0	94.4	554.8	92.5	199.0	23.8	120.2	14.5	3471.5
PLA2-3 19.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 11.0.1 10.0.1 <th></th> <td>PLA2-2</td> <td>14.8</td> <td>105.0</td> <td>380.8</td> <td>74.6</td> <td>447 7</td> <td>243 5</td> <td>6.5</td> <td>381.9</td> <td>69.2</td> <td>396.8</td> <td>65.0</td> <td>138.3</td> <td>16.5</td> <td>82.0</td> <td>9.8</td> <td>2417 5</td>		PLA2-2	14.8	105.0	380.8	74.6	447 7	243 5	6.5	381.9	69.2	396.8	65.0	138.3	16.5	82.0	9.8	2417 5
Profile File		PL 42-3	19.1	139.0	480.9	94.9	546.2	272.3	7.4	441.1	82.1	488 1	82.6	180.5	21.5	111.2	13.1	2960.8
Interv Lo. 139.4 98.4 25.0 39.4 63.7 0.0 483.5 81.2 400.0 (50.0 108.4 20.0 104.1 12.3 201.5 Hanging wall samples TET HW-1 30.6 285.6 998.6 182.6 987.4 471.7 16.8 676.8 131.4 808.0 145.8 365.5 49.3 264.2 32.5 541.1 Profite TETHW-2 23.6 447.6 158.91 12.4 80.8 117.6 26.3 518.0 65.8 33.9.6 41.7 722.6 Profite TETHW-4 45.6 837.5 1352.9 23.1.7 124.8 058.2 56.9 73.2 144.2 92.19 17.6.1 431.5 54.1 27.6.4 33.8 655.4 STI-1 40.3 234.0 803.5 138.3 720.1 369.3 12.6 531.4 106.4 633.0 103.2 235.8 32.2 190.7 23.8		PLA2 4	15.7	124.4	494.4	02.0	524.2	202.3	6.0	445 2	81.7	469 6	78.0	169.4	20.0	104.1	12.2	2016 7
Hange yu Supplet Hange yu Supplet Hange yu Supplet Hange yu Supplet Ter HW-1 30.6 VS.6	-	p. LA2-4	13./	134.4	404.4	92.0	334.2	201.1	U.u.	443.5	01.2	408.0	/0.0	105.4	20.0	104.1	12.3	2910.7
Name AHe ages La Ce Pr Nd Sm Eu Gd Tb Dy Ho Er Tm Vb Lu ∑REE TET TETHW-1 30.6 28.6 998.6 182.6 987.6 417.0 168.6 161.4 808.0 145.8 365.5 49.3 264.2 32.6 27.6 74.6 73.6 142.2 921.9 176.1 431.5 54.1 276.4 33.8 655.4 TETHW-2 24.8 93.3 200.0 52.2 28.0 130.8 105.4 77.4 93.8 415.4 27.6 33.8 655.4 TST-1 40.3 234.0 803.5 138.3 720.1 369.3 12.6 531.4 106.4 633.0 105.2 25.8 32.2 190.7 23.8 4134.2 ST1-2 33.8 252.1 876.6 150.4 796.0 332.7 7.9 324.1 65.9 399.5 66.4 153.0	L	1						~	rianging w	van samples	,							
TET TET String		Name	AHe ages	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	∑REE
TET Profix TETW-2 23.6 447.6 1589.1 273.7 1465.7 644.1 14.9 954.2 183.9 171.6 216.3 518.0 65.8 339.6 41.7 7926.2 TETHW-4 45.6 387.5 1352.9 231.7 1248.0 508.2 15.9 773.2 144.2 921.9 176.1 431.5 54.1 276.4 33.8 655.4 STI-1 40.3 234.0 803.5 138.3 720.1 3693 12.6 531.4 106.4 633.0 103.2 235.8 32.2 190.7 23.8 413.4 STI-2 32.8 156.1 564.2 105.0 756.7 289.7 10.1 414.0 80.5 471.6 76.1 168.0 12.3 115.9 14.2 306.3 STI-4 43.2 162.0 532.9 88.1 448.2 222.7 7.9 324.1 65.9 399.5 66.4 153.0 21.0 125.0 15.7 2632.5	1	TETHW-1	30.6	285.6	998.6	182.6	987.4	471.7	16.8	676.8	131.4	808.0	145.8	365.5	49.3	264.2	32.5	5416.1
Profile TETHW-4 45.6 387.5 135.9 21.7 14.0 508.2 159 71.2 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 508.2 159 71.2 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 14.0 21.0 21.0 14.0 21.0	TET	TETHW-2	23.6	447.6	1589 1	273 7	1465.7	644 1	14.9	954 2	183.9	1171.6	216 3	518.0	65.8	339.6	41.7	7926.2
Titler Titler<	Profile	TETHW-4	45.6	387.5	1352.9	231 7	1248.0	508.2	15.9	773.2	144.2	921.9	176.1	431.5	54.1	276.4	33.8	6555.4
NILTON 14.0 25.3 20.0 3.2.2 204.0 150.6 0.2 198.7 30.9 26.6 102.9 13.8 77.4 9.2 150.6 STI-1 40.3 234.0 803.5 138.3 720.1 369.3 12.6 531.4 106.4 633.0 105.2 255.8 32.2 190.7 23.8 4134.2 STI-2 32.8 156.1 564.2 150.5 576.7 289.7 10.1 414.0 80.5 471.6 761. 168.0 21.3 115.9 14.2 3062.1 STI-4 43.2 162.0 532.9 88.1 448.2 222.7 73.9 324.1 659.3 399.5 66.4 153.0 12.0 125.0 157.7 265.7 STI-2 24.3 308.2 1052.7 204.3 1209.3 326.1 10.0 1073.3 184.1 1178.5 222.6 450.2 62.7 340.7 452.6 687.8 571.1 150.2		TETUW	14.9	02.2	200.0	52.2	284.0	120.0	63	100 7	26.0	221.7	42.2	102.0	12.9	77.4	0.0	1566.4
STI-1 40.3 234.0 80.3.5 138.3 720.1 309.3 12.6 531.4 106.4 633.0 103.2 235.8 32.2 190.7 23.8 4134.2 STI-2 32.8 156.1 564.2 105.0 576.7 289.7 10.1 414.0 80.5 471.6 76.1 168.0 21.3 115.9 14.2 3063.4 STI-4 43.2 162.0 532.9 88.1 448.2 222.7 7.9 324.1 65.9 399.5 66.4 153.0 21.0 125.0 15.7 2632.5 STI-1 21.2 213.6 764.6 153.1 929.3 396.8 16.2 811.0 140.7 888.0 166.5 331.7 45.0 217.5 31.5 510.5 STI-1-2 24.3 308.2 1052.7 204.3 126.1 210.0 1073.3 184.1 1178.5 222.6 450.2 62.7 340.7 452.2 687.8 STI-2		1E1HW-5	14.8	93.3	290.0	32.2	204.0	150.8	0.2	198./	50.9	228.7	42.2	102.9	13.8	11.4	9.2	1.300.4
S11-1 40.5 234.0 80.3 138.3 720.1 309.3 12.6 531.4 106.4 633.0 103.2 235.8 32.2 190.7 23.8 4134.2 ST1-2 32.8 156.1 564.2 105.0 57.7 289.7 10.1 414.0 80.5 471.6 76.1 168.0 21.3 115.9 14.2 306.3 ST1-3 38.3 257.2 87.6 150.4 796.0 382.7 13.5 551.4 110.2 671.2 112.9 261.0 34.6 196.1 24.2 448.1 ST1-4 43.2 162.0 532.9 88.1 448.2 222.7 79 324.1 65.9 399.5 66.4 153.0 125.0 125.0 263.5 ST11-2 21.2 21.36 764.6 153.1 929.3 366.8 16.0 101.7 188.0 166.5 331.7 450.0 217.5 31.5 510.5 ST11-5 21.2 <t< th=""><th> </th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>																		
ST1-2 32.8 156.1 564.2 105.0 576.7 289.7 10.1 414.0 80.5 471.6 76.1 168.0 21.3 11.5 14.2 3063.4 ST1-3 38.3 257.2 876.6 150.4 790.0 382.1 162.0 532.9 88.1 448.2 222.7 7.9 324.1 65.9 399.5 66.4 153.0 21.0 125.0 15.7 2632.5 ST 24.3 308.2 1052.7 204.3 1209.3 256.1 21.0 1073.3 184.1 1178.5 222.6 450.2 66.7 300.7 45.2 6878.8 ST1-1.2 24.2 213.6 704.6 153.1 929.3 306.8 16.0 101.7 888.0 166.5 331.7 45.0 217.5 31.5 510.5 ST1-2 24.3 308.2 1052.7 204.3 1209.3 326.1 14.0 1019.7 191.5 306.6 52.3 300.5 377.5 <th> </th> <th>ST1-1</th> <th>40.3</th> <th>234.0</th> <th>803.5</th> <th>138.3</th> <th>720.1</th> <th>369.3</th> <th>12.6</th> <th>531.4</th> <th>106.4</th> <th>633.0</th> <th>103.2</th> <th>235.8</th> <th>32.2</th> <th>190.7</th> <th>23.8</th> <th>4134.2</th>		ST1-1	40.3	234.0	803.5	138.3	720.1	369.3	12.6	531.4	106.4	633.0	103.2	235.8	32.2	190.7	23.8	4134.2
ST1-3 38.3 257.2 876.6 150.4 796.0 382.7 17.9 551.4 110.2 671.2 112.9 261.0 34.6 196.1 24.2 443.1 ST1-4 43.2 162.0 532.9 88.1 448.2 222.7 7.9 324.1 65.9 399.5 66.4 153.0 120.0 125.0 15.7 2632.5 ST1-1 21.2 213.6 764.6 153.1 929.3 396.8 16.2 811.0 140.7 888.0 166.5 331.7 45.0 217.5 315.5 510.5 ST11-3 20.2 275.6 937.5 179.3 346.1 160.9 916.8 160.0 1019.5 150.2 269.9 30.5 315.5 510.5 ST11-5 2.9 208.6 708.2 138.3 847.4 363.5 14.5 73.4 126.5 808.2 150.2 299.9 40.2 180.4 217.5 315.5 165.6 317.7 224.0 <th> </th> <td>ST1-2</td> <td>32.8</td> <td>156.1</td> <td>564.2</td> <td>105.0</td> <td>576.7</td> <td>289.7</td> <td>10.1</td> <td>414.0</td> <td>80.5</td> <td>471.6</td> <td>76.1</td> <td>168.0</td> <td>21.3</td> <td>115.9</td> <td>14.2</td> <td>3063.4</td>		ST1-2	32.8	156.1	564.2	105.0	576.7	289.7	10.1	414.0	80.5	471.6	76.1	168.0	21.3	115.9	14.2	3063.4
ST1-4 43.2 162.0 532.9 88.1 448.2 222.7 7.9 324.1 65.9 399.5 66.4 153.0 21.0 125.0 15.7 2632.5 ST 2.1.3 2.1.6 764.6 153.1 929.3 396.8 16.2 811.0 140.7 888.0 166.5 331.7 45.0 217.5 31.5 5105.5 ST 2.4.3 308.2 1052.7 204.3 1209.3 326.1 1.0.0 107.3 184.1 1178.5 222.6 450.2 6.7. 340.7 45.2 687.8 ST1-1 24.9 208.6 708.2 138.3 847.4 363.5 14.5 73.48 126.5 808.2 150.2 299.9 40.2 180.4 27.3 464.8 ST12-1 29.4 44.8 25.9 186.7 138.4 4.8 26.60 75.6 553.1 119.2 270.1 39.5 24.4 31.7 224.0 553.5 51.2		ST1-3	38.3	257.2	876.6	150.4	796.0	382.7	13.5	551.4	110.2	671.2	112.9	261.0	34.6	196.1	24.2	4438.1
STI 21.2 21.3 764.6 153.1 929.3 396.8 162 81.0 140.7 888.0 166.5 331.7 45.0 217.5 31.5 5105.5 ST 571.1-2 24.3 308.2 105.7. 204.3 1209.3 326.1 21.0 1073.3 184.1 117.5 222.6 450.2 6.2.7 340.7 45.2 687.8 ST11-5 20.2 275.6 937.5 179.1 1069.3 461.6 16.9 916.8 160.0 1019.7 191.5 386.8 22.9 300.5 37.5 6005.8 ST11-2 29.4 44.8 124.8 25.9 186.7 138.4 4.8 366.0 75.6 553.1 119.2 270.1 39.5 243.4 31.7 222.0 ST12-2 35.2 24.9 75.2 16.5 125.3 104.0 4.2 294.6 63.9 482.7 106.8 224.0 185.6 517.2 127.3 155.6	1	ST1-4	43.2	162.0	532.9	88.1	448.2	222.7	7.9	324.1	65.9	399.5	66.4	153.0	21.0	125.0	15.7	2632.5
STI 1-1 21.2 21.3.6 764.6 153.1 929.3 396.8 16.2 811.0 140.7 888.0 166.5 331.7 45.0 217.5 31.5 6105.5 ST 24.3 308.2 1052.7 204.3 1209.3 256.1 21.0 1073.3 184.1 1178.5 222.6 450.2 6.7.3 340.7 45.2 687.8 Profile ST1-5 24.9 208.6 708.2 138.3 847.4 363.5 14.5 73.4.8 126.5 808.2 150.2 299.9 40.2 180.4 27.3 464.8 ST12-1 29.4 44.8 125.9 186.7 138.4 4.8 366.0 75.6 553.1 119.2 270.1 39.5 243.4 31.7 22.4 464.8 ST12-2 29.4 43.6 67.5 183.4 140.0 38.2 275.7 56.4 417.8 90.4 20.8 28.8 20.0 183.5 515.5		1																
ST STI-2 24.3 300.3 100.4 100.7 100	1	ST11-1	21.2	213.6	764.6	153.1	929 3	396.8	16.2	811.0	140.7	888.0	166.5	331.7	45.0	217.5	31.5	5105.5
Profile ST1-1-3 2.0.2 27.5 937.5 1007.3 108.1 11.8.3 22.4.0 40.0.2 00.1.7 300.7 40.2.6 087.8 Profile ST1-3 20.2 275.6 937.5 179.1 1009.3 461.6 16.9 916.8 160.0 191.5 386.6 52.9 300.5 300.5 307.5 6005.8 ST12-1 29.4 44.8 124.8 25.9 186.7 138.4 4.8 366.0 75.6 553.1 119.2 270.1 39.5 243.4 31.7 2220.0 ST12-2 32.2 24.9 75.2 155.3 104.0 4.2 294.6 63.9 482.7 106.8 240.0 366.0 28.8 29.0 183.6 24.0 165.1 553.1 119.2 270.1 39.5 243.4 31.7 2224.0 366.5 32.9 183.6 24.0 165.1 553.5 51.2 36.8 43.0 64.7 33.3 73.2 1	ST	ST11 2	24.2	308.2	1052.7	204.2	1200.2	526.1	21.0	1072.2	184.1	1179.5	222.6	450.2	62.7	340.7	45.2	6879.9
Fride S11-5 20.2 21.0.5 97.5 17.1.1 1007.3 401.0 10.9 916.8 100.0 101.9 191.5 386.8 52.9 300.5 37.5 6005.8 ST1-5 24.9 208.6 708.2 138.3 847.4 363.5 14.5 734.8 126.5 808.2 150.2 299.9 40.2 180.4 27.3 6608.8 ST12-1 29.4 44.8 124.8 25.9 186.7 138.4 4.8 366.0 75.6 553.1 119.2 270.1 39.5 243.4 31.7 2224.0 ST12-2 35.2 24.9 75.2 16.5 125.3 104.0 4.2 294.6 63.9 482.7 106.8 244.0 36.6 28.8 29.0 183.6 ST12-3 29.4 30.6 87.3 18.3 131.4 100.0 3.8 29.0 42.2 333.3 73.2 165.4 24.0 147.4 19.3 129.8 <t< th=""><th>B. (7)</th><td>ST11-2</td><td>24.3</td><td>275.5</td><td>027.5</td><td>204.3</td><td>1209.5</td><td>461.0</td><td>21.0</td><td>015.0</td><td>169.1</td><td>1010.7</td><td>101.5</td><td>400.2</td><td>52.0</td><td>200.7</td><td>+J.2 27.5</td><td>6005.0</td></t<>	B. (7)	ST11-2	24.3	275.5	027.5	204.3	1209.5	461.0	21.0	015.0	169.1	1010.7	101.5	400.2	52.0	200.7	+J.2 27.5	6005.0
S11-5 24.9 208.6 708.2 138.3 847.4 363.5 14.5 734.8 126.5 808.2 150.2 299.9 40.2 180.4 27.3 4648.1 ST12-1 294 44.8 124.8 25.9 186.7 138.4 4.8 366.0 75.6 553.1 119.2 270.1 39.5 243.4 31.7 2224.0 ST12-2 35.2 24.9 75.2 155.3 104.0 4.2 204.6 63.9 482.7 106.8 244.0 36.6 228.8 20.0 183.6 ST12-3 36.8 24.3 67.5 13.6 94.8 74.5 3.3 200.0 44.2 33.3 73.2 165.4 24.0 147.4 19.3 1293.8 ST12-5 35.2 64.8 197.1 40.7 288.8 207.2 7.0 542.9 110.5 801.1 17.3 366.6 57.2 346.0 145.5 2268.7 PLA5-1 23.3<	Profile	5111-3	20.2	275.6	937.5	1/9.1	1069.3	461.6	16.9	916.8	160.0	1019.7	191.5	386.8	52.9	300.5	37.5	6005.8
FI12-1 29.4 44.8 124.8 25.9 186.7 138.4 4.8 366.0 75.6 553.1 119.2 270.1 39.5 243.4 31.7 2224.0 ST12-2 35.2 24.9 75.2 16.5 125.3 104.0 4.2 294.6 63.9 482.7 106.8 244.0 36.6 228.8 29.0 183.6 ST12-3 29.4 30.6 87.3 18.3 131.4 100.0 3.8 290.0 44.2 333.3 75.2 16.5 24.0 165.1 33.2 90.0 44.2 333.3 75.2 16.5 124.0 165.1 33.2 90.0 44.2 333.3 75.2 16.5 44.0 147.4 19.3 139.5 S12.6 24.0 165.1 33.5 S12.2 10.5 801.1 173.5 38.6 57.2 346.0 45.5 328.7 ST12-5 35.2 44.8 197.1 40.7 288.8 07.2 7.0		ST11-5	24.9	208.6	708.2	138.3	847.4	363.5	14.5	734.8	126.5	808.2	150.2	299.9	40.2	180.4	27.3	4648.1
ST12-1 294 44.8 124 259 186.7 138.4 4.8 366.0 75.6 553.1 1192.2 270.1 39.5 24.4 31.7 2224.0 ST12-2 35.2 24.9 75.2 15.5 15.3 104.0 4.2 294.6 63.9 482.7 106.8 24.0 36.6 228.8 29.0 183.6 ST12-3 30.6 87.3 18.3 131.4 100.0 3.8 275.7 56.4 417.8 90.4 20.1 29.9 182.6 24.0 165.1 ST12-5 35.2 64.8 197.1 40.7 288.8 207.2 7.0 542.9 110.5 801.1 17.3 86.6 57.2 346.0 145.5 256.7 ST12-5 52.2 64.8 197.1 40.7 288.8 207.2 7.0 542.9 110.5 801.1 17.3 86.6 57.2 346.0 345.2 256.7 PLA5-1 23.3		1																
ST12-2 35.2 24.9 75.2 16.5 125.3 104.0 4.2 29.4 66.9 482.7 106.8 244.0 36.6 228.8 29.0 183.6.6 ST12-3 29.4 30.6 87.3 18.3 131.4 100.0 3.8 275.7 56.4 417.8 90.4 203.1 29.9 182.6 24.0 1651.4 33.3 79.7 56.4 417.8 90.4 203.1 29.9 182.6 24.0 1651.5 352.7 57.2 352.7 165.4 240.0 147.4 193.3 1293.8 ST12-5 35.2 64.8 197.1 40.7 288.8 207.2 7.0 542.9 110.5 801.1 173.5 386.6 57.2 346.0 45.5 3268.7 PLA 21.3 52.3 144.9 4.5 339.2 72.9 57.8 117.9 328.8 47.6 232.3 39.9 234.9 244.5 256.0 11.3 33.7 36		ST12-1	29.4	44.8	124.8	25.9	186.7	138.4	4.8	366.0	75.6	553.1	119.2	270.1	39.5	243.4	31.7	2224.0
ST12-3 29.4 30.6 87.3 18.3 131.4 100.0 3.8 275.7 56.4 417.8 90.4 203.1 29.9 182.6 24.0 1651.5 ST12-5 35.2 64.8 67.5 13.6 94.8 70.2 200.0 44.2 333.3 73.2 165.4 24.0 147.4 19.3 1293.8 ST12-5 35.2 64.8 197.1 40.7 288.8 207.2 7.0 542.9 110.5 801.1 17.5 366.6 57.2 346.0 147.4 19.3 1293.8 PLA5-1 23.3 52.3 149.8 28.8 107.2 7.0 542.9 110.5 801.1 17.3 366.6 57.2 346.0 145.5 236.7 PLA5-1 23.3 52.3 149.8 144.9 4.5 339.2 72.9 537.8 117.9 328.8 47.6 293.3 39.9 2349.5 PLA5-1 24.5 165.0 15.2 </th <th></th> <th></th> <th>35.2</th> <th>24.9</th> <th>75.2</th> <th>16.5</th> <th>125.3</th> <th>104.0</th> <th>4.2</th> <th>294.6</th> <th>63.9</th> <th>482.7</th> <th>106.8</th> <th>244.0</th> <th>36.6</th> <th>228.8</th> <th>29.0</th> <th>1836.6</th>			35.2	24.9	75.2	16.5	125.3	104.0	4.2	294.6	63.9	482.7	106.8	244.0	36.6	228.8	29.0	1836.6
ST12-4 36.8 24.3 67.5 13.6 94.8 74.5 3.3 209.0 44.2 333.3 73.2 165.4 24.0 147.4 19.3 1293.8 ST12-5 35.2 64.8 197.1 40.7 288.8 207.2 7.0 542.9 110.5 801.1 173.5 386.6 57.2 346.0 45.5 326.7 PLA 23.3 37.2 165.4 24.0 147.4 19.3 1293.8 PLA 23.3 52.3 149.8 28.8 191.8 144.9 4.5 339.2 72.9 537.8 117.9 328.8 47.6 293.3 39.9 234.5 PLA5 21.5 66.9 194.3 37.7 255.3 181.5 4.8 406.6 84.7 611.1 133.7 368.3 53.2 325.3 345.2 276.9 Phofile PLA5-4 37.5 151.0 31.2 207.5 156.0 4.7 378.3 79.9		ST12-2			87.3	18.3	131.4	100.0	3.8	275.7	56.4	417.8	90.4	203.1	29.9	182.6	24.0	1651.5
ST12-5 3.5.2 64.8 107.1 40.7 28.8.8 207.2 7.0 54.2 107.1 10.7 145.5 326.8 PLA5-1 23.3 52.3 149.8 28.8 107.2 7.0 54.2 107.5 386.6 57.2 346.0 45.5 326.87 PLA5-1 23.3 52.3 149.8 28.8 191.8 144.9 4.5 339.2 72.9 537.8 117.9 328.8 47.6 293.3 39.9 2349.5 PLA5-1 23.3 52.3 149.8 28.8 191.8 144.9 4.5 339.2 72.9 537.8 117.9 328.8 47.6 293.3 39.9 2349.5 PhGe PLA5-1 23.3 15.2 217.5 156.0 17.7 37.8 10.11 133.7 368.6 51.7 311.9 42.4 256.01 PLA5-4 37.5 317.1 820.3 121.7 519.1 189.3 4.5 221.3 51		ST12-2 ST12-3	29.4	30.6	M //			74.5	3.3	209.0	44.2	333.3	73.2	165.4	24.0	147.4		
PLAS-1 23.3 52.3 149.8 28.8 191.8 144.9 4.5 339.2 72.9 537.8 117.9 328.8 47.6 293.3 39.9 234.5 PLA PLA5-1 23.3 52.3 149.8 28.8 191.8 144.9 4.5 339.2 72.9 537.8 117.9 328.8 47.6 293.3 39.9 2349.5 PLA PLA5-2 41.5 66.9 194.3 37.7 255.3 181.5 4.8 406.6 84.7 611.1 133.7 368.3 53.2 323.3 39.9 2349.5 Profile PLA5-3 29.9 59.5 165.0 31.2 207.5 156.0 4.7 378.3 79.9 584.1 133.7 368.6 51.7 311.9 42.4 2560.1 PLA5-4 37.5 317.1 820.3 121.7 519.1 189.3 4.5 221.3 51.8 382.5 79.9 28.4 36.3 24.0.6 3		ST12-2 ST12-3 ST12-4	29.4 36.8	30.6 24 3	67.5	13.6	94.8	14 5		- W Z . W	77.4	at al al and	1.2.4		2.44	144 / 44	193	1293 X
PLAS-1 23.3 52.3 149.8 28.8 191.8 144.9 4.5 339.2 72.9 537.8 117.9 328.8 47.6 293.3 39.9 2349.5 PLA PLAS-2 41.5 66.9 194.3 37.7 255.3 181.5 4.8 406.6 84.7 611.1 133.7 368.3 55.2 325.3 45.5 276.9 Profile PLAS-3 299 59.5 165.0 31.2 207.5 156.0 4.7 378.3 79.9 58.4.1 12.92 358.6 51.7 311.9 42.4 2560.1 PLAS-4 37.5 317.1 820.3 121.7 519.1 189.3 4.5 221.3 51.8 382.5 79.9 228.4 36.3 240.6 31.6 324.4 RE analyses we performed all Genosciences Monthement available at the AETE-ISO MONTORVER MONTORVERIbert 38.8 27.9 28.4 36.3 24.0 31.0 324.4		ST12-2 ST12-3 ST12-4 ST12-5	29.4 36.8 35.2	30.6 24.3	67.5	13.6	94.8 789 9	207.2	7.0	542.0	110.5	801.1	172.5	386.6	57.2	346.0	19.3	3269.7
PLA PLA 2.3. 2.3. 14.9. 2.8.8 144.9 4.5. 339.2 72.9 537.8 117.9 328.8 47.6 29.3 39.9 2349.5 PhA PLA PLA-52 41.5 66.9 194.3 37.7 253.3 181.5 4.8 406.6 84.7 611.1 133.7 368.3 53.2 225.3 48.1 46.6 84.7 611.1 133.7 368.3 53.2 235.3 181.5 4.8 406.6 84.7 611.1 133.7 368.3 53.2 235.3 181.5 4.8 406.6 84.7 611.1 133.7 368.4 51.7 31.9 42.4 2560.1 PLA5-4 37.5 317.1 820.3 121.7 519.1 189.3 4.5 212.3 51.8 382.5 79.9 28.4 36.3 240.6 31.4 324.4 RE ant/sex were performed a Geosciences Montulent analyticat hathright platform of the ONU (OPKEME (TIME) envertori of MONTUMEHE) 42.4 266		ST12-2 ST12-3 ST12-4 ST12-5	29.4 36.8 35.2	30.6 24.3 64.8	67.5 197.1	13.6 40.7	94.8 288.8	207.2	7.0	542.9	110.5	801.1	173.5	386.6	57.2	346.0	19.3 45.5	3268.7
PLA PLA-5.2 41.5 66.9 194.3 37.7 255.3 181.5 4.8 406.6 84.7 611.1 133.7 368.3 55.2 325.3 43.5 276.60 Profile PLA-5.3 299 59.5 165.0 31.2 207.5 156.0 4.7 378.3 79.9 58.4.1 129.2 358.6 51.7 311.9 42.4 256.01 PLA5-4 37.5 317.1 820.3 121.7 519.1 189.3 4.5 221.3 51.8 382.5 79.9 228.4 36.3 240.6 31.6 324.4 RE analyses we performed a Geosciences. Montument available at the AETE-ISD ONCU IDENEM FUNCTIVIEV of MONTUNETHY 100.100 FUNCTURETHY 100.100 FUNCTURETHY 133.7 36.3 240.6 31.6 324.4		ST12-2 ST12-3 ST12-4 ST12-5	29.4 36.8 35.2	30.6 24.3 64.8	67.5 197.1	13.6 40.7	94.8 288.8	207.2	7.0	542.9	110.5	801.1	173.5	386.6	57.2	346.0	19.3 45.5	3268.7
Profile [PLA5-3 29.9 59.5 165.0 31.2 207.5 156.0 4.7 378.3 79.9 584.1 129.2 358.6 51.7 311.9 42.4 2500.1 PLA5-3 37.5 317.1 820.3 121.7 519.1 189.3 4.5 221.3 51.8 382.5 79.9 28.4 36.3 240.6 31.6 3244.4 REE analyses were performed at Gessciences Montellier uisnie the couloment available at the AETE-ISO analytical platform of the OKU OREMEr (Iniversity of Montellier) 36.3 240.6 31.6 3244.4		ST12-2 ST12-3 ST12-4 ST12-5 PLA5-1	29.4 36.8 35.2 23.3	30.6 24.3 64.8 52.3	67.5 197.1 149.8	13.6 40.7 28.8	94.8 288.8 191.8	74.5 207.2 144.9	7.0	542.9 339.2	110.5 72.9	801.1 537.8	173.5	386.6	57.2 47.6	293.3	19.3 45.5 39.9	1293.8 3268.7 2349.5
PLA5-4 37.5 317.1 820.3 121.7 519.1 189.3 4.5 221.3 51.8 382.5 79.9 228.4 36.3 240.6 31.6 324.4 RE analyses we reformed al Gosciences Motivationent available at he AETE-ISD ONUI 00EVHI (Thirsevitor of Montmoller)	PLA	ST12-2 ST12-3 ST12-4 ST12-5 PLA5-1 PLA5-2	29.4 36.8 35.2 23.3 41.5	30.6 24.3 64.8 52.3 66.9	67.5 197.1 149.8 194.3	13.6 40.7 28.8 37.7	94.8 288.8 191.8 255.3	74.5 207.2 144.9 181.5	7.0 4.5 4.8	542.9 339.2 406.6	110.5 72.9 84.7	801.1 537.8 611.1	173.5 117.9 133.7	386.6 328.8 368.3	24.0 57.2 47.6 53.2	293.3 325.3	19.3 45.5 39.9 43.5	1293.8 3268.7 2349.5 2766.9
REE analyses were performed at Géosciences Montpellier using the equipment available at the AETE-ISO analytical platform of the OSU ORFME (University of Montpellier)	PLA Profile	ST12-2 ST12-3 ST12-4 ST12-5 PLA5-1 PLA5-2 PLA5-3	29.4 36.8 35.2 23.3 41.5 29.9	30.6 24.3 64.8 52.3 66.9 59.5	67.5 197.1 149.8 194.3 165.0	13.6 40.7 28.8 37.7 31.2	94.8 288.8 191.8 255.3 207.5	144.9 181.5 156.0	7.0 4.5 4.8 4.7	542.9 339.2 406.6 378.3	110.5 72.9 84.7 79.9	801.1 537.8 611.1 584.1	173.5 117.9 133.7 129.2	386.6 328.8 368.3 358.6	24.0 57.2 47.6 53.2 51.7	293.3 325.3 311.9	19.3 45.5 39.9 43.5 42.4	1293.8 3268.7 2349.5 2766.9 2560.1
	PLA Profile	ST12-2 ST12-3 ST12-4 ST12-5 PLA5-1 PLA5-2 PLA5-3 PLA5-4	29.4 36.8 35.2 23.3 41.5 29.9 37.5	30.6 24.3 64.8 52.3 66.9 59.5 317.1	67.5 197.1 149.8 194.3 165.0 820.3	13.6 40.7 28.8 37.7 31.2 121.7	94.8 288.8 191.8 255.3 207.5 519.1	74.5 207.2 144.9 181.5 156.0 189.3	7.0 4.5 4.8 4.7 4.5	542.9 339.2 406.6 378.3 221.3	110.5 72.9 84.7 79.9 51.8	801.1 537.8 611.1 584.1 382.5	173.5 117.9 133.7 129.2 79.9	328.8 368.3 358.6 228.4	47.6 53.2 51.7 36.3	293.3 325.3 311.9 240.6	19.3 45.5 39.9 43.5 42.4 31.6	1293.8 3268.7 2349.5 2766.9 2560.1 3244.4



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Figure 4. (U-Th)/He ages vs. eU (U+0.235*Th) for the 4 different profiles: A) Thuès B) Galinàs C) St-Thomas D) Planès.



Figure 5. (U-Th)/ages vs. Th/U for A) all the samples from the Têt fault footwall and B) for the Têt fault hanging wall samples.



Figure 6. U-Th-He ternary diagrams using Helioplot (Vermeesch, 2010) for the 4 profiles where samples from the Têt fault footwall and hanging wall are distinguished A) Thuès B) Gallinàs C) St-Thomas D) Planès.

Table 3. QTQt models parameters for the Têt fault footwall and hanging wall.

QTQt model for the Têt fault footwall	QTQt model for the Têt fault hanging wall						
Samples and data used in simulations	Samples and data used in simulations						
AHe data	AHe data						
TET3	ML1						
TET4	ST14						
TET5	ST12						
TET7	GAL2						
GAL3	GAL1						
GAL6							
GAL7	AFT data (Maurel et al., 2008)						
	ZHe data (Maurel et al., 2008)						
AFT data (Maurel et al., 2008)							
ZHe data (Maurel et al., 2008)	Data treatment, uncertainties, and other relevant constraints						
	AHe data						
Data treatment, uncertainties, and other relevant constraints	Treatment: Each of the 4 samples was used as a separate constraint in QTQt. Uncorrected						
AHe data	He ages (Ma): Uncorrected He age of each apatite grain						
Treatment: Each of the 4 samples was used as a separate constraint in QTQt. Uncorrecte	Error (Ma) applied in modelling: the 1o sample standard deviation						
He ages (Ma): Uncorrected He age of each apatite grain	r (um): equivalent radius of each apatite grain						
Error (Ma) applied in modelling: the 1 or sample standard deviation	eU (ppm): eU of each apatite grain						
r (µm): equivalent radius of each apatite grain	eU zonation: none						
eU (ppm): eU of each apatite grain							
eU zonation: none	Additional geologic information						
	Assumption						
Additional geologic information	At surface temperature of $15 \pm 10^{\circ}$ C by 0 Ma						
Assumption	Motion of Mont Louis massif						
At surface temperature of $15 \pm 10^{\circ}$ C by 0 Ma							
Motion of Canigou and Carança massif	System and model specific parameters						
	He kinetic model: Gautheron et al. (2009)						
System and model specific parameters	Modelling code: QTQt v.5.7.0						
He kinetic model: Gautheron et al. (2009)	Number of MCMC chain 100000						
Modelling code: QTQt v.5.7.0							
Number of MCMC chain 100000							



40 Figure 7. Predicted age vs Observed age graph using QTQt (Gallagher, 2012) for samples from the damage zone footwall (A,B,C and D) and hanging wall (E,F,G and H), computed with Gautheron et al. (2009) diffusion model. Modelling parameters are those of Table 3 with AFT and ZHe data from Maurel et al. (2008). For all samples, the weak or the lack of correspondence between observed and predicted ages indicates that no regional cooling history can reasonably explain the AHe age dispersion.

45 References

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- Chew, D. M., Babechuk, M. G., Cogné, N., Mark, C., O'Sullivan, G. J., Henrichs, I. A., Doepke, D. and McKenna, C. A.: (LA,Q)-ICPMS trace-element analyses of Durango and McClure Mountain apatite and implications for making natural LA-ICPMS mineral standards, Chemical Geology, 435, 35–48, doi:10.1016/j.chemgeo.2016.03.028, 2016.
- Gallagher, K.: Transdimensional inverse thermal history modeling for quantitative thermochronology, Journal of Geophysical
 Research: Solid Earth, 117(B2), n/a-n/a, doi:10.1029/2011JB008825, 2012.
 - Gautheron, C., Tassan-Got, L., Barbarand, J. and Pagel, M.: Effect of alpha-damage annealing on apatite (U–Th)/He thermochronology, Chemical Geology, 266(3–4), 157–170, doi:10.1016/j.chemgeo.2009.06.001, 2009.
 - Martin G. : Analyse des relations entre structure de la faille de la Têt et sources hydrothermales. Master of Science Thesis, Montpellier, 45, 2014.
- 55 Maurel, O., Monié, P., Pik, R., Arnaud, N., Brunel, M. and Jolivet, M.: The Meso-Cenozoic thermo-tectonic evolution of the Eastern Pyrenees: an 40Ar/39Ar fission track and (U–Th)/He thermochronological study of the Canigou and Mont-Louis massifs, International Journal of Earth Sciences, 97(3), 565–584, doi:10.1007/s00531-007-0179-x, 2008.
 - Sun, S. S., and McDonough, W. F.: Chemical and isotopic systematics of oceanic basalts: implications for mantle composition and processes. Geological Society, London, Special Publications, 42p, 313–345. https ://doi.org/10.1144/GSL.SP.1989.042.01.19, 1989.
 - Taillefer, A.: Interactions entre tectonique et hydrothermalisme : Rôle de la faille normale de la Têt sur la circulation hydrothermale et la distribution des sources thermales des Pyrénées Orientales., Thesis, Montpellier, 27 October., 242p, 2017.

Vermeesch, P.: HelioPlot, and the treatment of overdispersed (U–Th–Sm)/He data, Chemical Geology, 271(3–4), 108–111, doi:10.1016/j.chemgeo.2010.01.002, 2010.

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