



Isotope Analyses for:  
Arcadis-Chile

IT2 FILE #  
150039

2015-03-30

Mirna Stas

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**Client:** Arcadis Chile  
 Antonio Varas 621, Providencia  
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**Attn.:** Ignacio Despouy Z.  
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## $\delta^{18}\text{O}$ Analyses Results :

**File Number:** 150039

**Project Number:**

#	Sample ID	Sample #	$\delta^{18}\text{O}$	Aver	Stdv
			$\text{H}_2\text{O}$	VSMOW	
1	1	29664	X	-5.96	0.07
2	2	29665	X	-9.82	0.04
3	3	29666	X	-9.52	0.06
4	4	29667	X	-2.91	0.11
5	5	29668	X	-10.01	0.03
6	6	29669	X	-9.82	0.03
7	7	29670	X	-10.57	0.06
8	8	29671	X	-13.12	0.02
9	21	29672	X	-12.15	0.02
10	22	29673	X	-9.71	0.04
11	23	29674	X	-8.64	0.02
12	24	29675	X	-7.59	0.06
13	25	29676	X	-11.90	0.04
14	26	29677	X	-6.66	0.03
15	27	29678	X	-6.61	0.03
16	28	29679	X	-8.70	0.06
17	29	29680	X	-8.01	0.20

**Instrument Used:** Cavity Ring Down Spectroscopy (CRDS)

CRDS (Model L1102-i) (Piccaro, California, USA).

**Standard Used:**

IT<sup>2</sup>-13 / IT<sup>2</sup>-14 / IT<sup>2</sup>-12 Calibrated with IAEA Standards (V-SMOW, SLAP, and GISP)

**Typical Standard deviation:**

±0.1‰



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**File Number:** 150039

**Project Number:**

#	Sample ID	Sample #	$\delta^2\text{H}$	Aver	Stdv
			$\text{H}_2\text{O}$	VSMOW	
1	1	29664	X	-62.3	0.5
2	2	29665	X	-79.6	0.2
3	3	29666	X	-78.4	0.4
4	4	29667	X	-55.2	0.3
5	5	29668	X	-76.0	0.2
6	6	29669	X	-76.6	0.4
7	7	29670	X	-82.2	0.3
8	8	29671	X	-100.2	0.3
9	21	29672	X	-96.4	0.2
10	22	29673	X	-83.3	0.2
11	23	29674	X	-75.1	0.2
12	24	29675	X	-72.4	0.3
13	25	29676	X	-84.7	0.2
14	26	29677	X	-67.7	0.2
15	27	29678	X	-60.7	0.3
16	28	29679	X	-75.8	0.8
17	29	29680	X	-81.0	0.4

**Instrument Used:** Cavity Ring Down Spectroscopy (CRDS)

CRDS (Model L1102-i) (Piccaro, California, USA).

**Standard Used:**

$\text{IT}^2\text{-13}$  /  $\text{IT}^2\text{-14}$  /  $\text{IT}^2\text{-12}$  Calibrated with IAEA Standards (V-SMOW, SLAP, and GISP)

**Typical Standard deviation:**

$\pm 1\text{‰}$



Isotope Analyses for:  
Arcadis-Chile

IT2 FILE #  
150054

2015-03-30





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## $\delta^{18}\text{O}$ Analyses Results :

**File Number:** 150054

**Project Number:**

#	Sample ID	Sample #	$\delta^{18}\text{O}$	Aver	Stdv
			$\text{H}_2\text{O}$	VSMOW	
1	9	29936	X	-7.04	0.09
2	10	29937	X	-7.18	0.03
3	11	29938	X	-7.33	0.06
4	12	29939	X	-7.31	0.10
5	13	29940	X	-9.08	0.03
6	14	29941	X	-8.39	0.03
7	15	29942	X	-9.43	0.04
8	16	29943	X	-9.77	0.02
9	17	29944	X	-9.42	0.03
10	18	29945	X	-10.60	0.04
11	19	29946	X	-9.39	0.04
12	20	29947	X	-5.72	0.07
13	45	29948	X	1.76	0.13
14	46	29949	X	5.58	0.07
15	47	29950	X	-7.09	0.03
16	48	29951	X	-6.68	0.01
17	49	29952	X	-7.09	0.03
18	50	29953	X	-4.75	0.10
19	51	29954	X	-7.48	0.06
20	59	29955	X	-5.21	0.08

**Instrument Used:** Cavity Ring Down Spectroscopy (CRDS)  
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**Standard Used:**

IT<sup>2</sup>-13 / IT<sup>2</sup>-14 / IT<sup>2</sup>-12 Calibrated with IAEA Standards (V-SMOW, SLAP, and GISP)

**Typical Standard deviation:**

±0.1‰



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## $\delta^2\text{H}$ Analyses Results :

**File Number:** 150054

**Project Number:**

#	Sample ID	Sample #	$\delta^2\text{H}$	Aver	Stdv
			$\text{H}_2\text{O}$	VSMOW	
1	9	29936	X	-63.1	0.2
2	10	29937	X	-63.4	0.2
3	11	29938	X	-64.1	0.2
4	12	29939	X	-66.8	0.2
5	13	29940	X	-62.1	0.2
6	14	29941	X	-56.5	0.2
7	15	29942	X	-64.9	0.3
8	16	29943	X	-67.7	0.2
9	17	29944	X	-64.9	0.2
10	18	29945	X	-74.5	0.3
11	19	29946	X	-64.7	0.3
12	20	29947	X	-62.1	0.4
13	45	29948	X	-31.0	0.3
14	46	29949	X	-15.8	0.5
15	47	29950	X	-64.4	0.2
16	48	29951	X	-62.7	0.8
17	49	29952	X	-64.5	0.2
18	50	29953	X	-59.0	0.3
19	51	29954	X	-66.5	0.2
20	59	29955	X	-60.9	0.3

**Instrument Used:** Cavity Ring Down Spectroscopy (CRDS)  
 CRDS (Model L1102-i) (Piccaro, California, USA).

**Standard Used:**

IT<sup>2</sup>-13 / IT<sup>2</sup>-14 / IT<sup>2</sup>-12 Calibrated with IAEA Standards (V-SMOW, SLAP, and GISP)

**Typical Standard deviation:**

±1‰



Isotope Analyses for:  
Arcadis-Chile

IT2 FILE #  
150092

2015-03-30

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## $\delta^{18}\text{O}$ Analyses Results :

**File Number:** 150092

**Project Number:**

#	Sample ID	Sample #	$\delta^{18}\text{O}$	Aver	Stdv
			$\text{H}_2\text{O}$	VSMOW	
1	1	30597	X	-4.54	0.05
2	2	30598	X	-5.29	0.05
3	3	30599	X	-6.38	0.06
4	4	30600	X	-6.64	0.02
5	5	30601	X	-12.91	0.02
6	6	30602	X	-11.09	0.03
7	7	30603	X	-7.08	0.02
8	8	30604	X	-11.34	0.04
9	9	30605	X	-11.37	0.04
10	10	30606	X	-11.64	0.03
11	11	30607	X	-4.99	0.03
12	12	30608	X	-1.50	0.05
13	13	30609	X	-1.57	0.10

**Instrument Used:** Cavity Ring Down Spectroscopy (CRDS)  
 CRDS (Model L1102-i) (Piccaro, California, USA).

**Standard Used:**

$\text{IT}^2\text{-13}$  /  $\text{IT}^2\text{-14}$  /  $\text{IT}^2\text{-12}$  Calibrated with IAEA Standards (V-SMOW, SLAP, and GISP)

**Typical Standard deviation:**

$\pm 0.1\%$





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## $\delta^2\text{H}$ Analyses Results :

**File Number:** 150092

**Project Number:**

#	Sample ID	Sample #	$\delta^2\text{H}$	Aver	Stdv
			$\text{H}_2\text{O}$	VSMOW	
1	1	30597	X	-50.4	0.2
2	2	30598	X	-54.2	0.2
3	3	30599	X	-62.1	0.3
4	4	30600	X	-59.8	0.3
5	5	30601	X	-88.3	0.2
6	6	30602	X	-80.1	0.3
7	7	30603	X	-66.0	0.3
8	8	30604	X	-89.8	0.3
9	9	30605	X	-89.3	0.2
10	10	30606	X	-88.6	0.9
11	11	30607	X	-52.1	0.4
12	12	30608	X	-37.9	0.5
13	13	30609	X	-38.1	0.2

**Instrument Used:** Cavity Ring Down Spectroscopy (CRDS)  
 CRDS (Model L1102-i) (Piccaro, California, USA).

**Standard Used:**

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**Typical Standard deviation:**

$\pm 1\text{‰}$