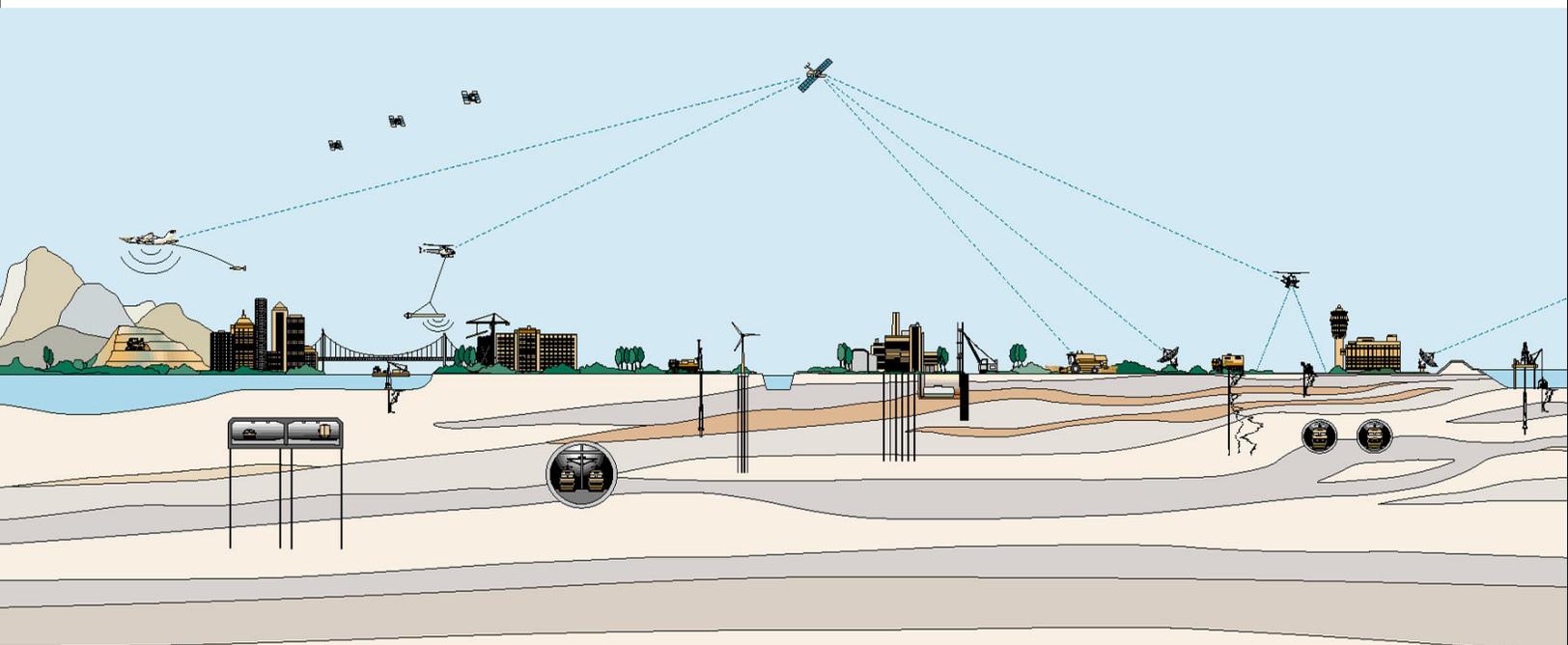

FUGRO CONSULTANTS, INC.



**ANNUAL REPORT
JULY 2011 THROUGH JUNE 2012
CALLE DEL BARCO
LANDSLIDE ASSESSMENT DISTRICT
MALIBU, CALIFORNIA**

Prepared for:
CITY OF MALIBU

September 2012
Fugro Job No. 04.B3399005





4820 McGrath Street, Suite 100
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Tel: (805) 650-7000
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September 26, 2012
Project No. 04.B3399005

City of Malibu
23825 Stuart Ranch Road
Malibu, California 90265

Attention: Mr. Rob Duboux

Subject: Annual Report, July 2011 through June 2012, Calle del Barco Landslide Assessment District, Malibu, California

Dear Mr. Sanchez:

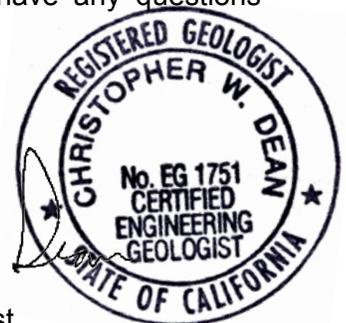
Fugro is pleased to present this annual report for the Calle del Barco Landslide Assessment District. This report summarizes the monitoring and maintenance activities completed during the period of July 2011 through June 2012.

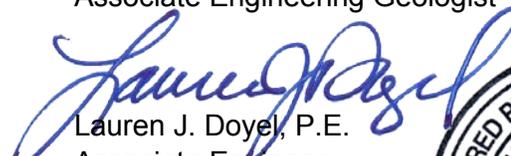
Fugro appreciates this opportunity to be of service to the City of Malibu and the District homeowners. Please contact Danya Pollard at (805) 289-3813 if you have any questions regarding this report.

Sincerely,
FUGRO CONSULTANTS, INC.


Danya R. Pollard
Staff Geologist, Project Manager


Christopher W. Dean
Associate Engineering Geologist




Lauren J. Doyel, P.E.
Associate Engineer



Copies Submitted: (2) Addressee and 1-CD
(1) City of Malibu Geology & Soils Staff



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1.0 INTRODUCTION

1.1 AUTHORIZATION

Fugro prepared this data report in accordance with our contract with the City of Malibu (City), commencing June 2011.

1.2 BACKGROUND

The Calle del Barco Landslide Assessment District (Assessment District) was established in 1986 by the County of Los Angeles (County) following the activation of a landslide between Rambla Orienta and Calle del Barco in 1978. The Assessment District provides permanent funding to maintain and monitor dewatering facilities with the purpose of stabilizing the landslide. The County administered the Assessment District until 1991 when the City of Malibu incorporated. The Assessment District was reauthorized in June 1998 under Resolution AD No. 98-2. The City has administered the Assessment District, utilizing consultants to maintain and monitor the district facilities.

1.3 SCOPE OF WORK

This annual report summarizes the monitoring and maintenance of the geotechnical instrumentation and dewatering facilities for the period between July 1, 2011, and June 30, 2012 (hereinafter, the 'monitoring period').

Data collected during this monitoring period included the following:

- Annual rainfall data from a local rain gauge operated by the County of Los Angeles, Department of Public Works - Water Resources Division;
- Monthly groundwater level measurements from 12 standpipes and 19 pneumatic piezometers;
- Monthly dewatering production readings from 11 dewatering wells;
- Monthly dewatering production readings from 9 horizontal drains;
- Quarterly ground deformation measurements from 12 slope inclinometers; and
- Periodic maintenance of dewatering and monitoring facilities.

The operating condition of the instrumentation and dewatering facilities was checked at each field monitoring/observation location and by evaluating preliminary data in the office as they were received. Maintenance was performed as needed, based upon the field observations and preliminary data evaluation.

The scope of services includes monitoring and maintenance of the Assessment District facilities. The services provided on an annual basis for the Assessment District do not include an engineering evaluation of the stability of the landslide.



1.4 REPORT ORGANIZATION

This report summarizes the monitoring data collected during the current monitoring period and presents conclusions regarding the annual monitoring results. The location of the Assessment District is illustrated on Plate 1 - Site Location Map. Locations of the geotechnical instrumentation are shown on Plate 2 - Assessment District Map. Tabulated and graphic summaries of monitoring data are presented in Appendices A through C.

1.5 REPORT AVAILABILITY

The annual Assessment District reports are available for review at Malibu City Hall. Reports may also be viewed on the City's website at <http://www.malibucity.org>.

2.0 MONITORING

2.1 RAINFALL DATA

Rainfall totals were tabulated based on recorded values from the Los Angeles County Rainfall Station 1239 - located at Big Rock Mesa. A graph of historical monthly rainfall and average annual rainfall is shown on Plate 3, Rainfall Graph.

Rainfall data indicate that approximately 11.71 inches of precipitation fell during the monitoring period from July 2011 through June 2012. The average annual rainfall from 1968 to 2012 in the Malibu area for the monitoring period July through June is approximately 16.1 inches.

Rainfall data are usually analyzed in terms of the annual "rain season" that covers the time period October 1 through September 30. Rainfall for October 1, 2011, through June 30, 2012, was approximately 11.67 inches. This is approximately 72 percent of the average annual rainfall of 16.1 inches for the rain seasons of 1968 through 2012.

2.2 GROUNDWATER MONITORING

The groundwater level data collected during the current monitoring period are summarized in Appendix A. Groundwater levels fluctuate throughout the year and from year to year in response to natural and man-made influences. The primary natural influence is varying precipitation. Man-made influences include:

- Infiltration from septic systems;
- Infiltration from irrigation;
- Alterations to surface drainage by grading, landscaping, storm drains, and rain gutters;
- Accidental water discharges from leaking utilities (water, irrigation, sewer, storm drain) and swimming pools; and
- Dewatering activities including pumping dewatering wells and hydraugers.



Typically, groundwater levels rise relatively quickly following significant rainfall and gradually lower after a wet season ends. Groundwater levels measured in standpipe piezometers (wells) and pneumatic piezometers are depicted in Appendix A. Groundwater levels recorded in the Assessment District typically peak around late-March to mid-April and gradually decline from late September through November.

A summary graph of normalized peak groundwater elevations for Calle del Barco is presented on the bottom graph of Plate 5. The top graph on Plate 5 shows the average dewatering output (gpd) and the cumulative departure from the mean rainfall. The average annual rainfall used for the chart was computed using all of the data from 1988 through the present. This graph illustrates that although annual rainfall has been generally increasing since 2008, the average dewatering output has been decreasing.

2.2.1 Standpipe Piezometers

Nine standpipe piezometers (SI-4, SI-5, SI-7, SI-8, SI-9, SI-13, SI-14, SI-15, and SI-16) were measured over the monitoring period. The locations of the standpipe piezometers are depicted on Plate 2 - Assessment District Map, and groundwater hydrographs are presented in Appendix A.

2.2.2 Pneumatic Piezometers

Each of the inclinometers installed within the Assessment District after 1996 were outfitted with two to four pneumatic piezometer sensors. Twenty-two sensors were measured regularly over the monitoring period. Each sensor records groundwater elevations by measuring differential air pressure between the instrument sensor and groundwater surface across a flexible bladder. Differential pressure is converted into inches of water head, and represented as a relative groundwater level. The locations of the piezometers are shown on Plate 2, and hydrographs are presented in Appendix A.

2.2.3 Groundwater Level Discussion

The groundwater data were reviewed by evaluating changes that occurred during the current monitoring period as well as changes in groundwater levels over extended periods. To analyze trends in seasonal groundwater fluctuations, the average (mean) annual and highest annual recorded groundwater elevation for each piezometer were calculated (Appendix A, Plate A-2).

Groundwater levels in individual piezometers were low relative to the previous year, with annual average groundwater elevations generally lower than the prior year averages. Average and peak groundwater levels for Rambla Vista and Rambla Orienta were generally at or below levels relative to the previous year. Measured groundwater levels around Calle del Barco were at or below average in standpipes and piezometers, except for SI-9, SI-15 and SI-16. Measured groundwater levels around Rambla Pacifico were above levels for the prior year. Overall, groundwater levels continue to show a general decline from the record rainfall of the 2004 to



2005 monitoring period. The average and highest annual groundwater levels are indicated in the following table:

Table 1. Summary of Average Groundwater Elevations by Area

Location	Average Groundwater Elevation	Change from Prior Year Average	Peak Groundwater El. 2011-2012	Change from Prior Year Peak
Rambla Orienta/ Rambla Vista	163.9	-2.3	185.2	-0.5
Calle Del Barco	253.9	-1.6	282.4	-3.4
Rambla Pacifico	336.8	+0.8	341.5	+0.7

All Units are in feet

2.3 DEWATERING PRODUCTION

Dewatering production data are provided in Appendix B, with dewatering well and hydrauger information presented on Plate B-1. A summary of the dewatering output based upon groundwater levels and rainfall is depicted on Plate 5.

2.3.1 Dewatering Well Production

The average total well production rate for the current monitoring period was approximately 955 gallons per day (gpd). This represents an increase of about 21 percent from the previous monitoring period of 789 gpd. A graph of the production rate for all dewatering wells is presented on Plate 4. Graphs showing production rates of individual wells are provided in Appendix B.

2.3.2 Hydrauger Production

The total production rate for all hydraugers from August 1991 through June 2012 is depicted on Plate 4. Hydrauger production rates for individual hydraugers are presented on Plate B-4 (Appendix B). Additional data regarding hydraugers and production rates are included in Appendix B.

The average hydrauger production rate for all hydraugers over the monitoring period was approximately 183 gpd. This represents approximately 82 percent of last year's hydrauger production rate of 223 gpd.

2.4 SLOPE INCLINOMETER MEASUREMENTS

Fugro monitored 12 slope inclinometers on a quarterly basis to observe subsurface ground deformation. Plots of slope inclinometer measurements (two plots for each monitored slope inclinometer) are presented in Appendix C. The first plot has a baseline reading from the final round of monitoring in the 2010 through 2011 monitoring year, showing ground movement within the 2011 through 2012 monitoring year. The second plot has a baseline reading from the



spring of 2005 (heavy rainfall and ground movement year) through the current monitoring year. Only inclinometer readings that have been checksum validated are presented on the data plots¹.

When reviewing and interpreting the slope inclinometer data plots, instrument limitations and movement history should be considered. Individual plots have been reviewed and interpreted with regard to movement along identified slide planes. Interpreted movement along the identified slide planes is summarized on Plate C-1 in Appendix C. Slope inclinometer plots show no signs of movement along identified slide planes during the 2011 through 2012 monitoring year. SI-7 and SI-9 show offset less than 0.05 inches, which is below the reliable accuracy of the instrument, and there is no identifiable pattern or progressive trend that indicates ground movement.

SI-13 (located on Rambla Pacifico above and outside the deep landslide) continues to show a variable pattern of compression in the upper 30 feet. However, no significant observable lateral displacement has been associated with this compression. If it appears that lateral movement is occurring, or distress is observed outside the current defined limits of the deep slide, the City may wish to consider replacing the inclinometer or adding other types of monitoring observations in order to monitor or characterize conditions in that area.

3.0 FACILITY MAINTENANCE

3.1 MAINTENANCE SUMMARY

The operating status of each dewatering well and hydrauger was checked monthly. When necessary, repair work would be scheduled and undertaken as expeditiously as possible, typically within a matter of a few hours or days. Generally, repairs and maintenance consisted of brush clearance for well and hydrauger locations for the 2011 through 2012 monitoring year.

3.1.1 New Dewatering Facilities

No new facilities were installed during the monitoring period.

4.0 SUMMARY AND CONCLUSIONS

4.1 SUMMARY

- The 2011 through 2012 monitoring year rainfall was below average with 11.71 inches of precipitation. Rainfall during the monitoring period was below the historical average of 16.2 inches per year measured from 1968 through 2012.
- In general, groundwater levels in the assessment district area were lower than average for Rambla Vista/Rambla Orienta and Calle del Barco, and 1 foot above average for Rambla Pacifico. Groundwater levels generally are continuing to decrease from the levels observed in the record winter of 2004 through 2005.

¹ Checksums are a data validation technique for slope inclinometers where the '0' (downslope) and '180' (upslope) readings are summed and the theoretical result should be zero.

- In the standpipe piezometers, groundwater levels were generally near or lower than groundwater levels in 1998 when major slope failure occurred.
- Total dewatering production increased about 12 percent when compared to last year's total production.
- Slope inclinometer readings indicate no significant ground movement.
- Additional dewatering facilities are recommended in order to increase the dewatering capacity of the landslide stabilization system. Plate 4 indicates decreased production from hydraugers. Over time, hydraugers become clogged and less efficient at removal of water by gravity. Replacement hydraugers should be considered for Rambla Orienta.
- Water conservation is encouraged throughout the Calle Del Barco area to reduce infiltration of domestic water and the potential for future groundwater level increases. Control of groundwater levels within the landslide area is critical to maintaining the stability of the landslides.
- Groundwater production from existing dewatering wells and hydraugers should be expected to gradually decline over time as the efficiency of the wells and hydraugers decrease due to mineralization and aging of the facilities.

5.0 REFERENCES

- Bing Yen and Associates, Inc. (1991), 'Monitoring, Instrumentation, and Dewatering Facilities at Calle Del Barco, Puerco Beach, Latigo Canyon, and Rambla Pacifico (two wells) Landslide Sites,' dated October 4.
- _____ (1992), 'First Quarter Observation Report: Instrumentation and Dewatering Facilities at Calle Del Barco, Puerco Beach, and Latigo Canyon Landslide Sites,' dated April 7.
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- _____ (1993), 'Semi-Annual Observation & Maintenance Report for the Period January to July 1993, Calle Del Barco, Malibu, California,' dated September.
- _____ (1994), 'Annual Observation & Maintenance Report for the Period July 1993 to July 1994, Calle Del Barco, Malibu, California,' dated September.
- _____ (1995), 'Annual Observation & Maintenance Report for the Period July 1994 to July 1995, Calle Del Barco, Malibu, California,' dated September.
- _____ (1996), 'Annual Observation & Maintenance Report for the Period July 1995 to July 1996, Calle Del Barco, Malibu, California,' dated August.
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- _____ (1998), 'Annual Observation & Maintenance Report for the Period July 1997 to April 1998, Calle Del Barco, Malibu, California,' dated April.
- _____ (1999), 'Annual Observation & Maintenance Report for the Period April 1998 to March 1999, Calle Del Barco, Malibu, California,' dated April.
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- Fugro West Inc. (2004), 'Annual Report, July 2003 through June 2004, Calle Del Barco Landslide Assessment District, Malibu, California,' dated November.

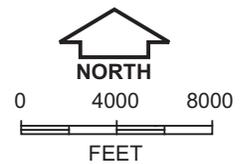


- _____ (2005), 'Annual Report, July 2004 through June 2005, Calle Del Barco Landslide Assessment District, Malibu, California,' dated October.
- _____ (2006), 'Annual Report, July 2005 through June 2006, Calle Del Barco Landslide Assessment District, Malibu, California,' dated August.
- _____ (2007), 'Annual Report, July 2006 through June 2007, Calle Del Barco Landslide Assessment District, Malibu, California,' dated October.
- _____ (2008), 'Annual Report, July 2007 through June 2008, Calle Del Barco Landslide Assessment District, Malibu, California,' dated October.
- _____ (2009), 'Annual Report, July 2008 through June 2009, Calle Del Barco Landslide Assessment District, Malibu, California,' dated October.
- _____ (2010), 'Annual Report, July 2009 through June 2010, Calle Del Barco Landslide Assessment District, Malibu, California,' dated April.
- _____ (2011), 'Annual Report, July 2010 through June 2011, Calle Del Barco Landslide Assessment District, Malibu, California,' dated November.

PLATES



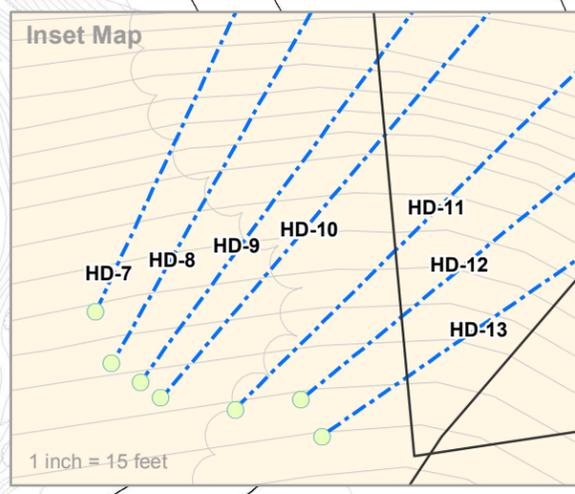
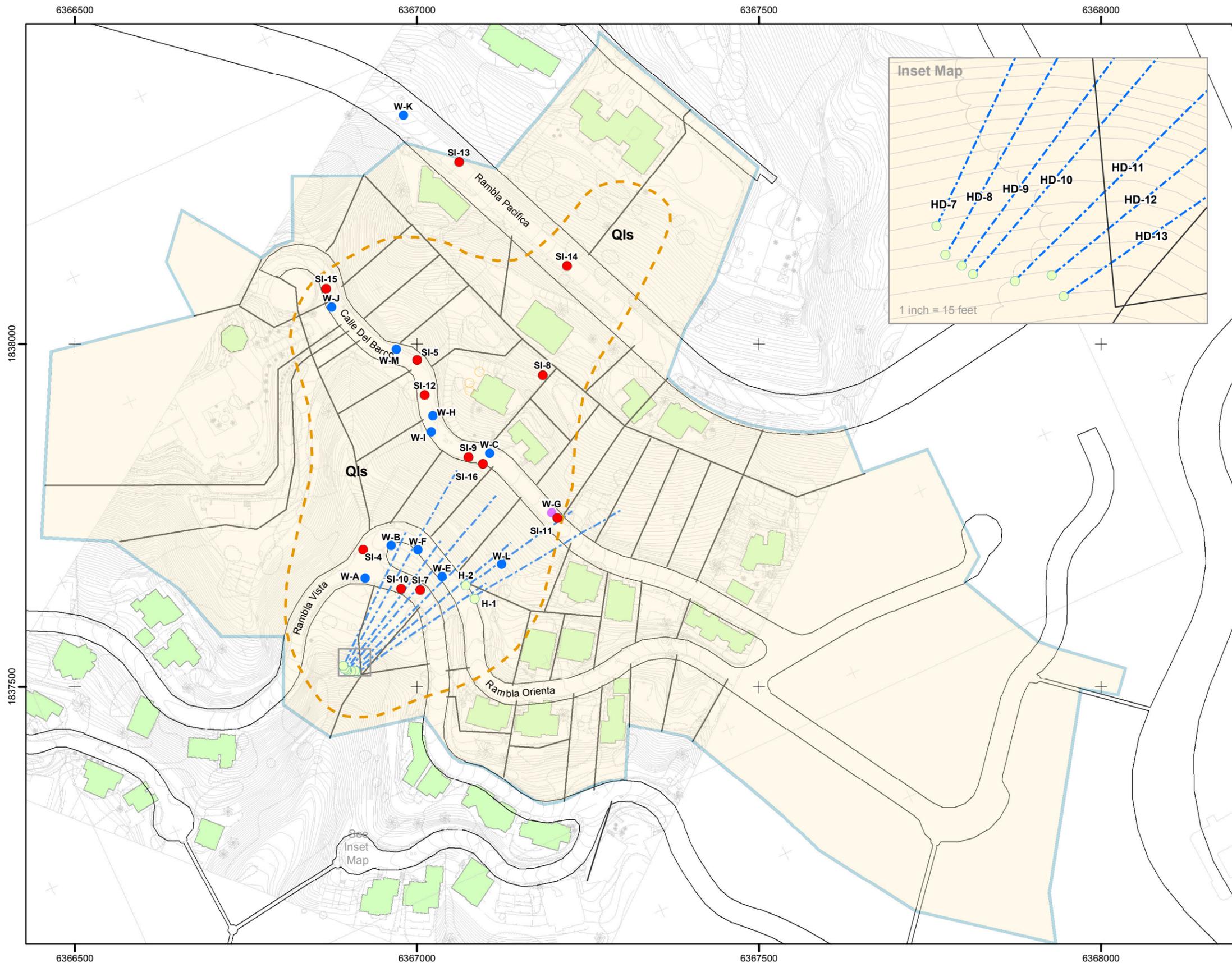
BASE MAP SOURCE: USGS 1:100,000-scale Metric Topographic Map of Los Angeles, California (1979).



SITE LOCATION MAP
Calle del Barco Landslide Assessment District
Malibu, California

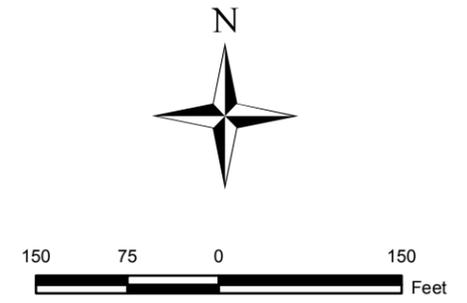
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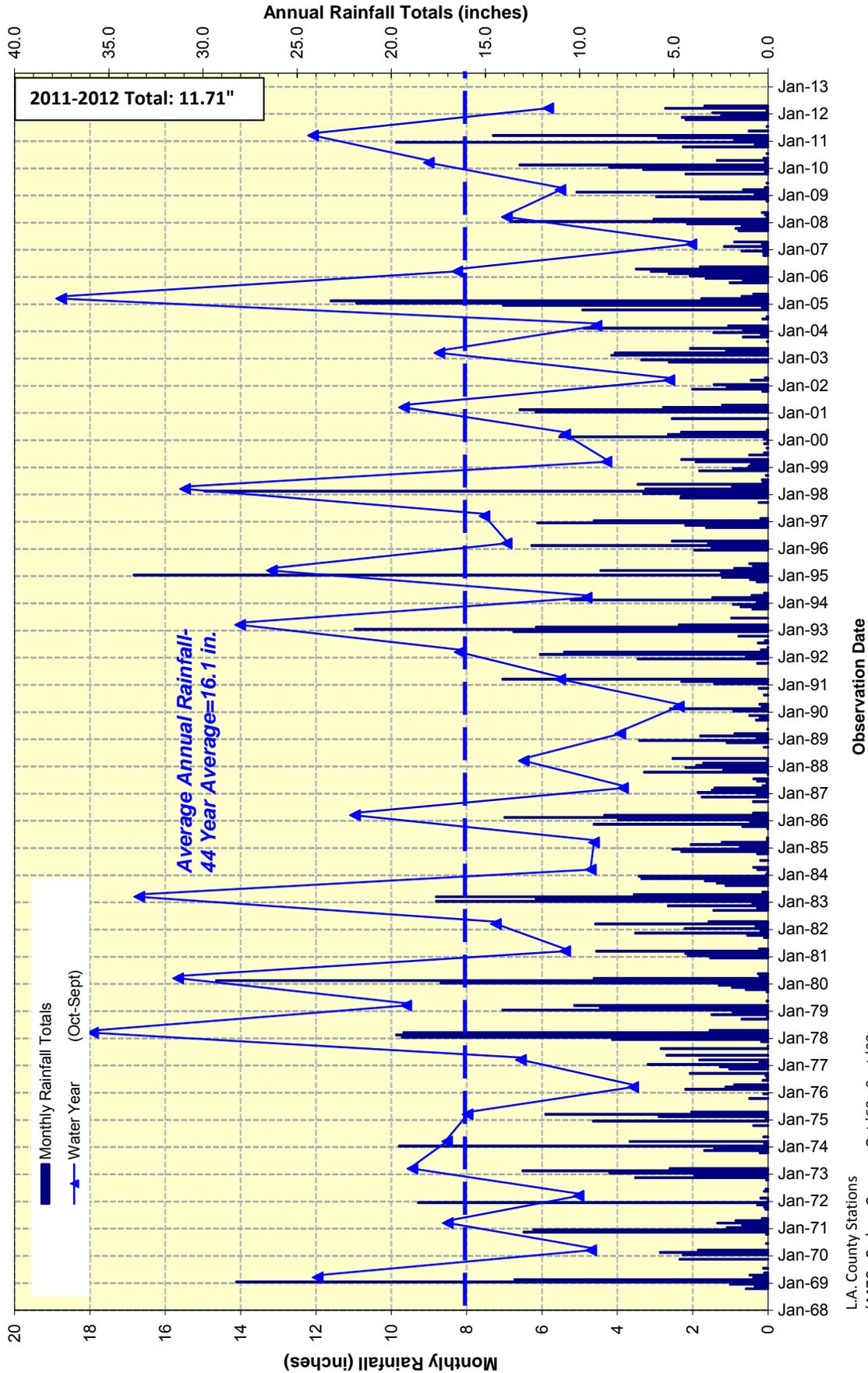
LEGEND

- Active Dewatering Well
 - Inactive Dewatering Well
 - Slope Inclinometer/Standpipe
 - - - Horizontal Drain (Hydrauger)
 - QIs Approximate Limits of Landslide
 - Assessment District Boundary
 - +
- Coordinate Grid: California State Plane, Zone 5, NAD 83, Feet



ASSESSMENT DISTRICT MAP
Calle del Barco Landslide Assessment District
Malibu, California

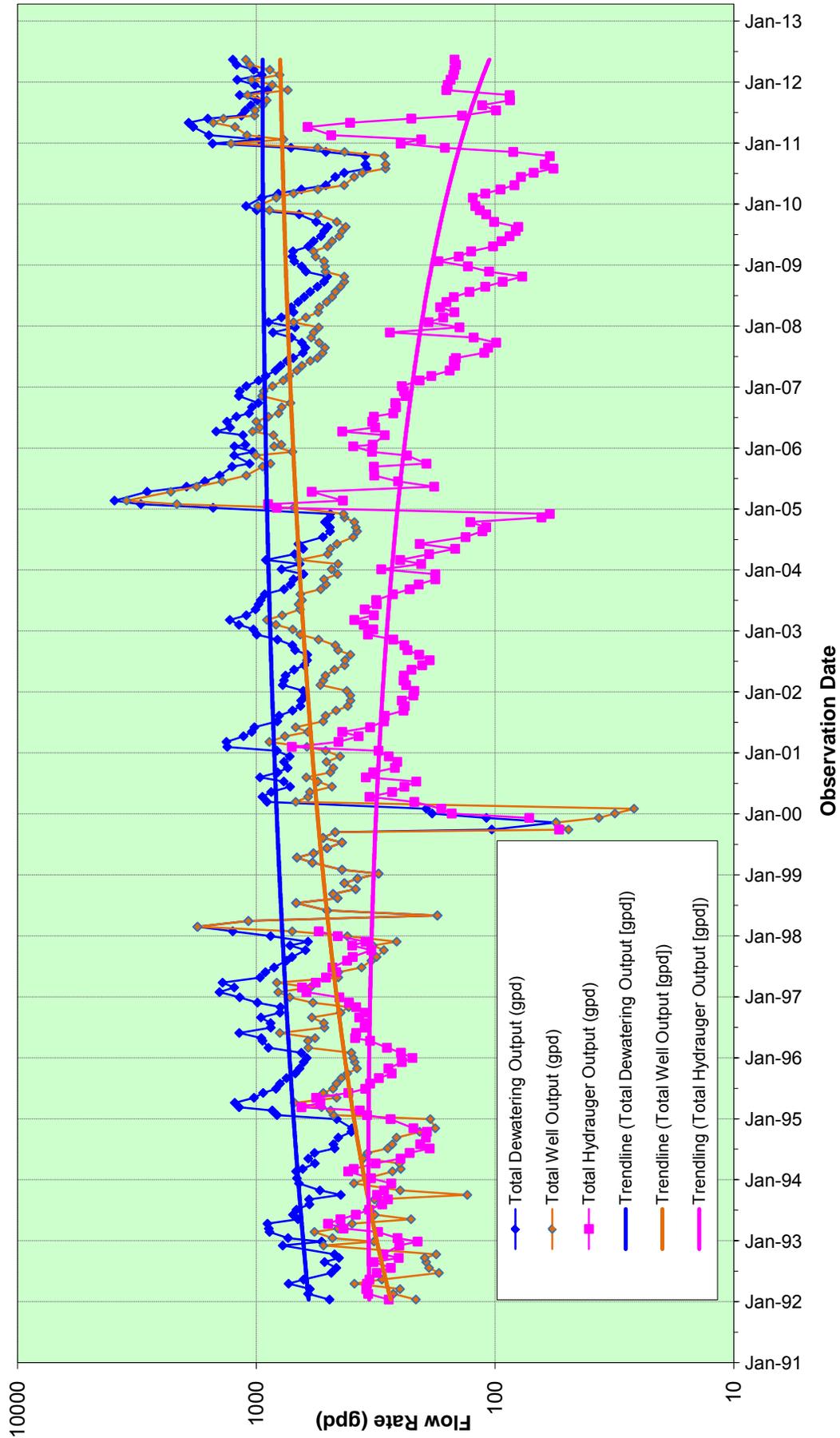
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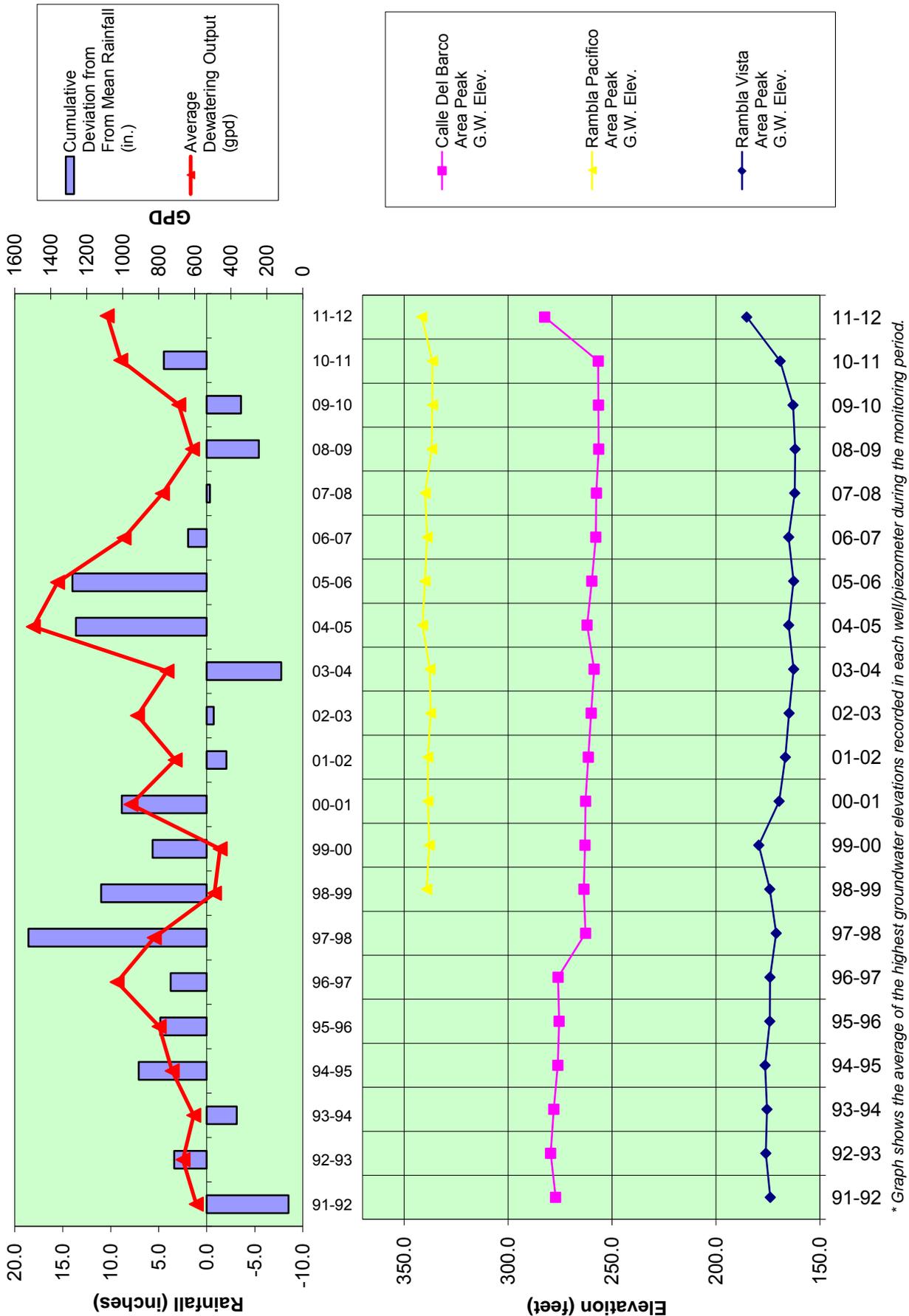
Observation Date

L.A. County Stations
 (447C - Carbon Canyon: Oct '68 - Sept '03
 & 1239 Big Rock Mesa : Oct '03 - present)

MALIBU AREA MONTHLY & AVERAGE ANNUAL RAINFALL
 Calle del Barco Landslide Assessment District
 Malibu, California



DEWATERING GRAPH
Total Output - All Wells & Hydraugers
Calle del Barco Landslide Assessment District
Malibu, California



* Graph shows the average of the highest groundwater elevations recorded in each well/piezometer during the monitoring period.

SUMMARY GRAPH
Groundwater Levels, Dewatering, & Rainfall
 Calle del Barco Landslide Assessment District
 Malibu, California

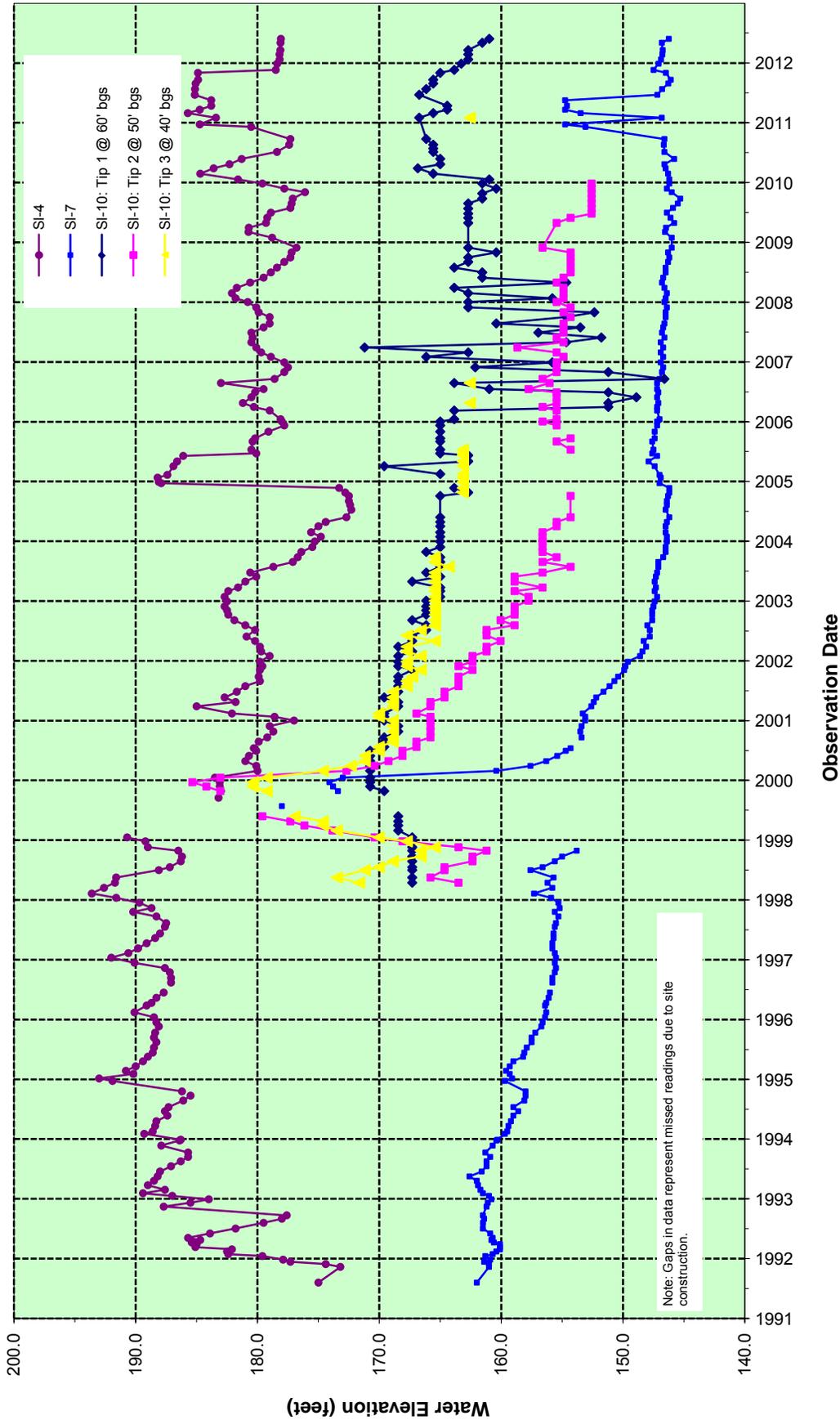
**APPENDIX A
GROUNDWATER DATA**



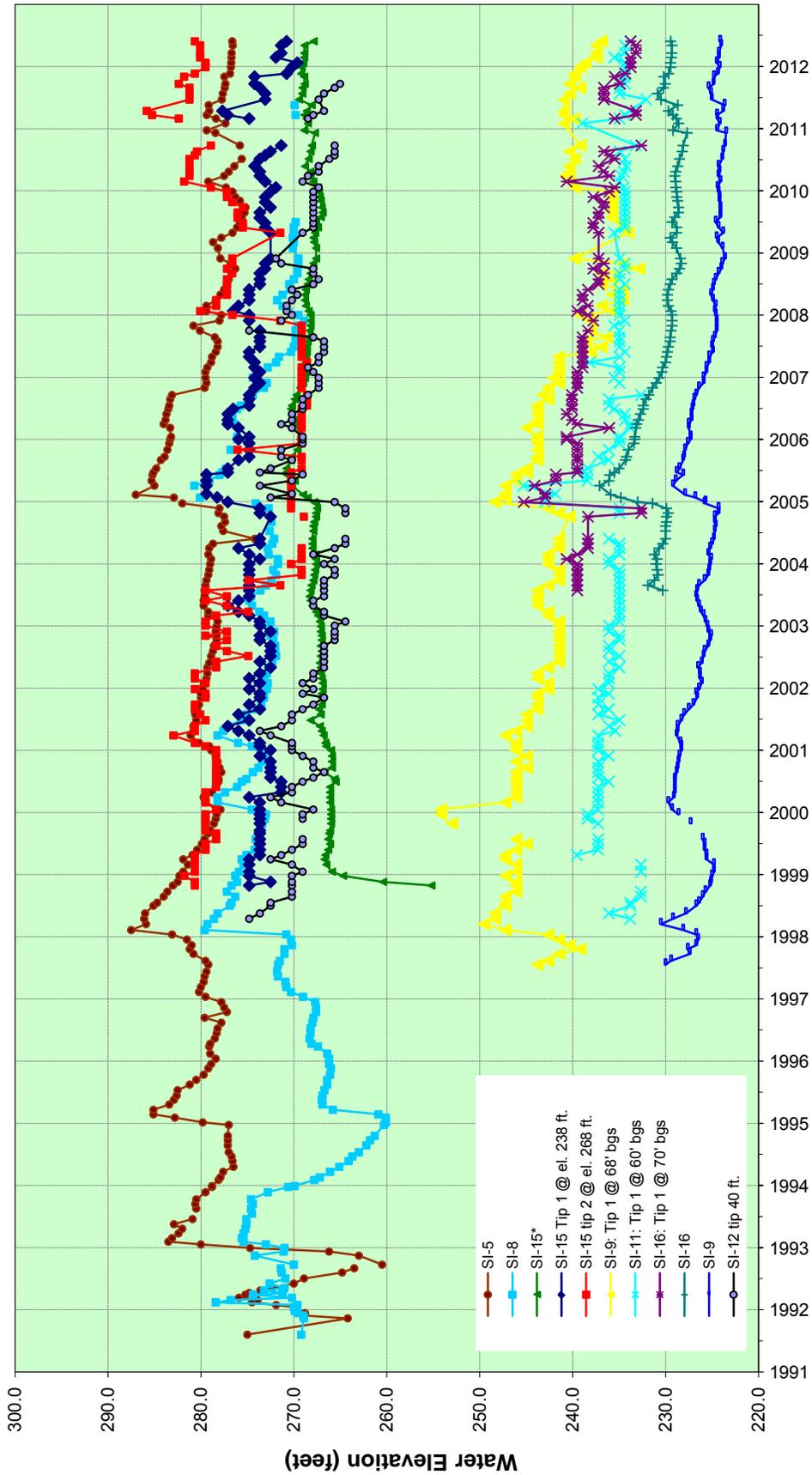
CALLE DEL BARCO - Pnuematic Piezometer Information					
Piezometer ID	Tip No.	Surface Elev. (ft)	Tip depth (ft)	Tip Elev. (ft)	Installed By
SI-9	1	298	71	227	BYA
	2		41	257	BYA
SI-10	1	202	64	138	BYA
	2*		54	148	BYA
	3		44	158	BYA
	4		24	178	BYA
SI-11	1	291.5	60	231.5	BYA
	2		50	241.5	BYA
	3*		40	251.5	BYA
	4*		20	271.5	BYA
SI-12	1	301	60	241	BYA
	2		50	251	BYA
	3		40	261	BYA
	4		20	281	BYA
SI-13	1	405	70	335	BYA
	2		50	355	BYA
SI-14	1	398	68	330	BYA
	2		48	350	BYA
SI-15	1	304	66	238	BYA
	2		36	268	BYA
SI-16	1	298	70	228	BYA
	2		40	258	BYA

*non functioning peizometer.

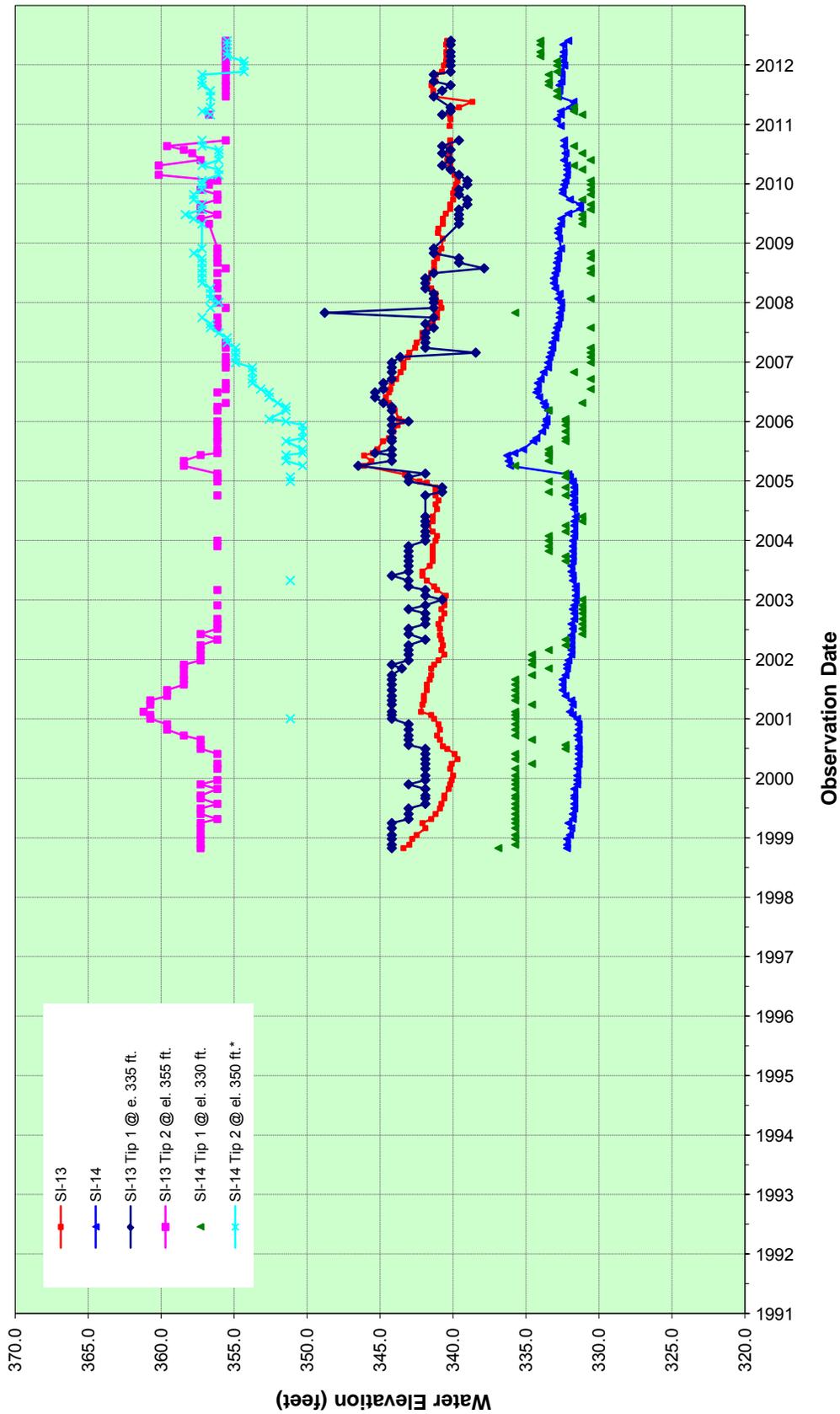
PNEUMATIC PIEZOMETER INFORMATION
 Calle del Barco Landslide Assessment District
 Malibu, California



GROUNDWATER HYDROGRAPH
Rambla Vista
Calle del Barco Landslide Assessment District
Malibu, California



GROUNDWATER HYDROGRAPH
Calle del Barco
Calle del Barco Landslide Assessment District
Malibu, California



GROUNDWATER HYDROGRAPH
Rambla Pacifico
Calle del Barco Landslide Assessment District
Malibu, California

**APPENDIX B
DEWATERING DATA**



CALLE DEL BARCO - Dewatering Well Information

Well ID	Vault Elevation (ft.)	Bottom Elevation (ft.)	Pump Elevation (ft.)	Pump Size (hp)	2011-2012 Pumping Rate (gpd)	% of Total Well Production	Comment
W-A	196.0	Unknown	45.0	1/2	57	6%	
W-B	204.0	Unknown	54.0	1/2	4	0%	
W-C	295.0	Unknown	233.0	1/2	89	9%	
W-D*	297.0	Unknown	Unknown	none	0	0%	dry - no pump
W-E	215.0	Unknown	116.5	1/2	31	3%	
W-F	210.0	109.0	112.0	1/2	65	7%	
W-G*	292.0	222.0	223.0	1/3	0	0%	dry
W-H	299.5	234.5	242.5	1/3	1	0%	
W-I	298.0	238.0	248.0	1/3	49	5%	
W-J	304.0	244.0	254.0	1/3	400	42%	
W-K	430.0	370.0	380.0	1/3	103	11%	
W-L	258.0	189.0	192.5	1/2	50	5%	
W-M	302.0	237.0	Unknown	Unknown	106	11%	

Note: * Non-functioning Dewatering Wells

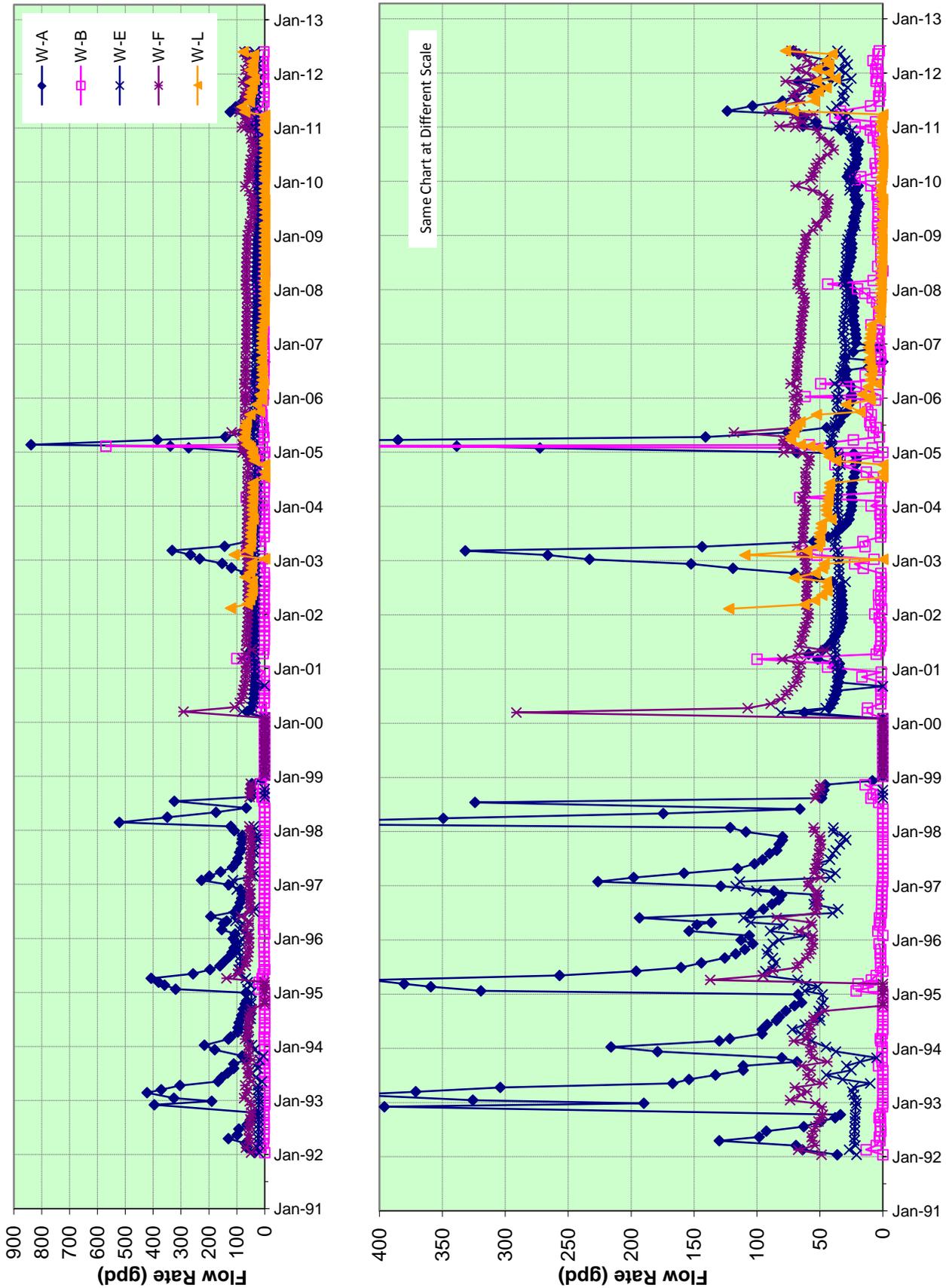
CALLE DEL BARCO - Hydrauger Information

Hydrauger ID	Installed Length (ft.)	Funtional Length (ft)	2011-2012 Flow Rate (gpd)	% of Total Production	Installed By	Comment
HD-1***	93	unknown	0	0%	BYA	
HD-2***	127	unknown	0	0%	BYA	
HD-3***	155	unknown	0	0%	BYA	
HD-4***	80	unknown	0	0%	BYA	
HD-5***	65	unknown	0	0%	BYA	
HD-6***	97	unknown	0	0%	BYA	
HD-7	227	unknown	0.2	0%	BYA	
HD-8	290	unknown	0	0%	BYA	
HD-9	230	unknown	0	0%	BYA	
HD-10	330	unknown	0	0%	BYA	
HD-11	230	unknown	0	0%	BYA	
HD-12	330	unknown	0	0%	BYA	
HD-13	210	unknown	96	52%	BYA	
H-1	240	unknown	72	39%	LA County	
H-2***	180	unknown	0	0%	LA County	
ROWH-1	--	unknown	15	8%	BYA	diverted from H-2
H-3**	235	unknown	0	0%	LA County	
H-4**	140	unknown	0	0%	LA County	
H-5**	260	unknown	0	0%	LA County	
H-6**	140	unknown	0	0%	LA County	
H-7**	205	unknown	0	0%	LA County	

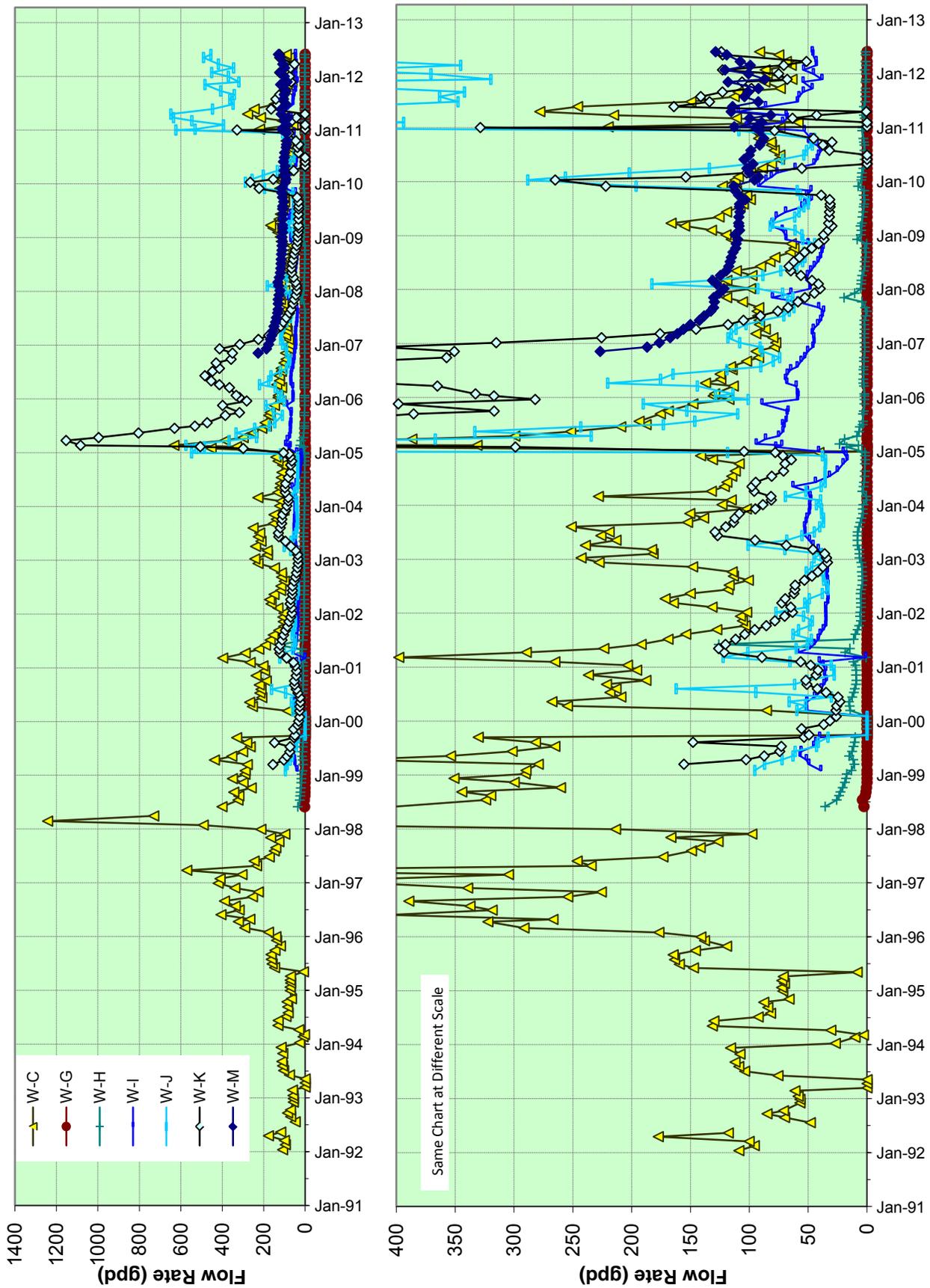
Note: ** Destroyed in 1998 Landslide

*** Non-producing Hydraugers

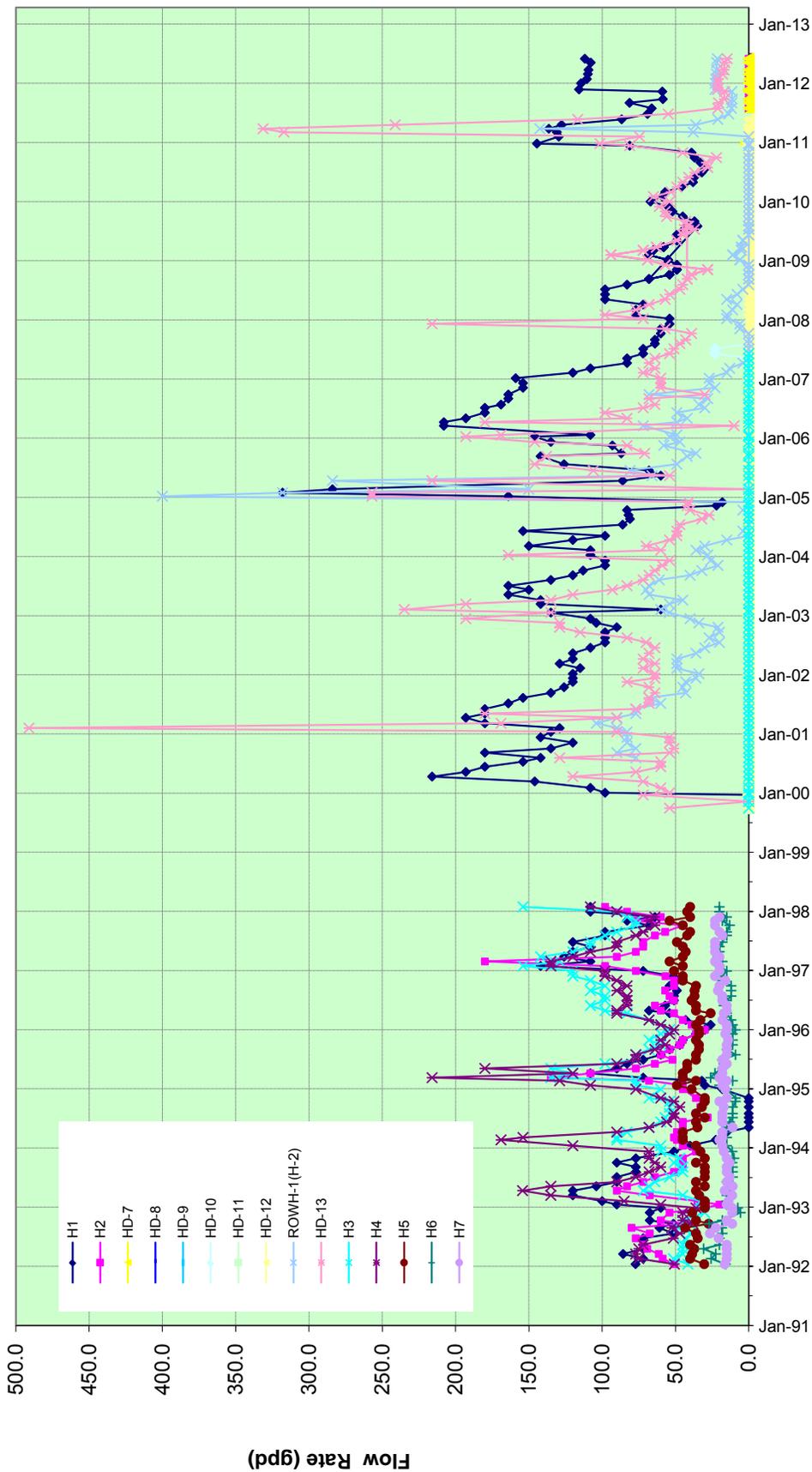
WELL AND HYDRAUGER INFORMATION
 Calle del Barco Landslide Assessment District
 City of Malibu



DEWATERING WELL GRAPH
Rambla Orienta & Slope
 Calle del Barco Landslide Assessment District
 Malibu, California



DEWATERING WELL GRAPH
Calle Del Barco & Rambla Pacifico
 Calle del Barco Landslide Assessment District
 Malibu, California



HYDRAUGER GRAPH
Discharge Rates for all Hydraulics
Calle del Barco Landslide Assessment District
Malibu, California

APPENDIX C
SLOPE INCLINOMETER DATA



CALLE DEL BARCO - Slope Incliner Interpretation Summary																	
	SI-1*	SI-1A	SI-2**	SI-3	SI-4	SI-5	SI-6	SI-7	SI-8	SI-9	SI-10	SI-11	SI-12	SI-13	SI-14	SI-15	SI-16
Installation Details																	
Surface Elev. (ft.) 4/00	295.0	297.0	298.0	207.0	206.0	302.0	295.0	200.0	335.0	288.0	202.0	291.5	301.0	405.0	398.0	304.0	295.0
Original DEPTH (ft.)	64.0	NI	NI	NI	76.0	100.0	NI	100.0	130.0	100.0	60.0	60.0	60.0	80.0	78.0	76.0	88.0
Current DEPTH (ft.)	64.0	NI	NI	NI	78.0	96.0	NI	102.0	130.0	96.0	62.0	57.0	56.0	78.0	76.0	72.0	86.0
STATUS	D	D	D	D	F	F	D	F	F	F	F	F	F	F	F	F	F
READING INTERVAL	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly	Qrtly
DATE OF INSTALLATION	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	3/13/98	3/12/98	3/12/98	9/1998	9/1998	9/1998	8/8/03
DATE FIRST BASE READING	NI	NI	NI	NI	NI	NI	NI	NI	NI	12/22/97	3/16/98	3/13/98	3/16/98	10/12/98	10/12/98	10/23/98	8/13/03
DEPTH of MOVEMENT (ft) ***	NI	NI	NI	NI	17-22	36-38	15.0	40.0	15-17	53.0	35-38	55.0	54	16-18	8.0	25, 77	46, 87
A + Axis orientation	NI	NI	NI	NI	0	38.0	NI	28.0	22.0	212.0	244.0	258.0	238.0	210.0	224.0	190.0	210 est.
Interpretation Movement (inches)																	
2011-2012	NR	NR	NR	NR	--	--	NR	< 0.05	< 0.05	0.01	--	--	--	--	--	--	--
2010-2011	NR	NR	NR	NR	--	--	NR	< 0.05	0.05	< 0.05	--	--	--	--	--	--	--
2009-2010	NR	NR	NR	NR	--	--	NR	--	--	--	--	--	--	--	--	--	--
2008-2009	NR	NR	NR	NR	--	--	NR	NA	--	--	--	--	--	--	--	--	--
2007-2008	NR	NR	NR	NR	--	--	NR	--	--	--	--	--	--	--	--	--	--
2006-2007	NR	NR	NR	NR	--	<0.1	NR	--	--	--	--	--	--	--	--	--	--
2005-2006	NR	NR	NR	NR	--	--	NR	--	--	--	--	--	<0.1	--	--	--	--
2004-2005	NR	NR	NR	NR	--	0.45	NR	<0.1	0.1	0.5	--	<0.1	0.11	--	--	--	0.35
2003-2004	NR	NR	NR	NR	--	--	NR	--	--	--	--	--	--	--	--	--	--
2002-2003	NR	NR	NR	NR	--	--	NR	--	--	--	--	--	--	--	--	--	--
2001-2002	NR	NR	NR	NR	--	--	NR	--	--	--	--	--	--	--	--	--	--
2000-2001	NR	NR	NR	NR	--	--	NR	--	--	--	--	--	--	--	--	--	--
1999-2000	NR	NR	NR	NR	--	--	NR	--	--	--	--	--	--	--	--	--	--
1998-1999	NR	NR	NR	NR	--	0.16	NR	0.11	--	2.19	--	--	--	--	--	--	--
1997-1998	NR	NR	NR	NR	0.22	0.4	NR	0.66	0.32	13	0.22	--	--	NR	NR	NR	NR
1996-1997	NR	NR	NR	NR	NA	NA	NR	NA	NA	NR	NR	NR	NR	NR	NR	NR	NR
1995-1996	NR	NR	NR	NR	NA	NA	NR	NA	NA	NR	NR	NR	NR	NR	NR	NR	NR

KEY:

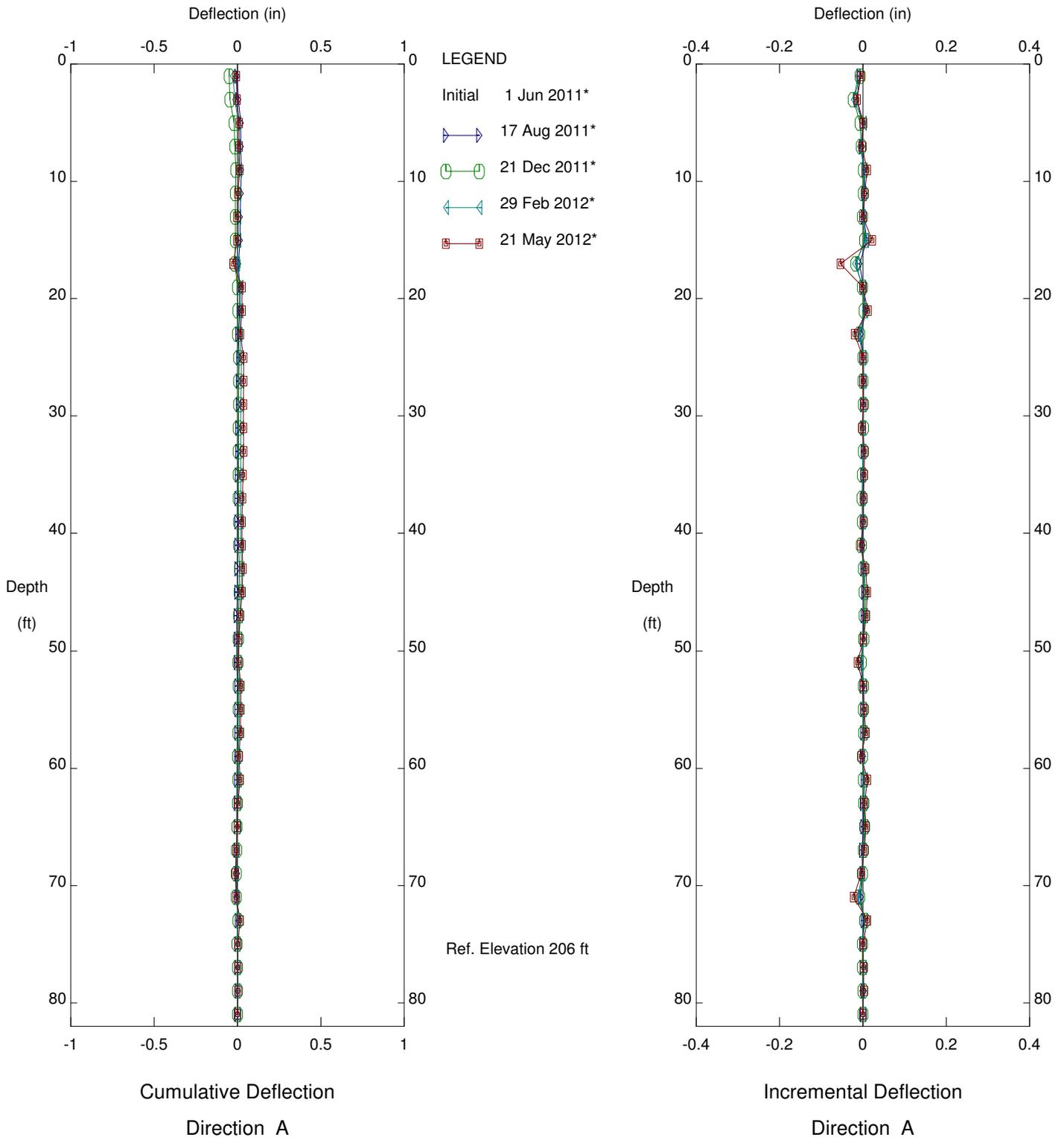
D	Destroyed
F	Functioning
B	New baseline in 1999
NI	No information
--	Shaded yellow to indicate inclinometer does penetrate basal rupture.
--	Shaded blue to indicate inclinometer does NOT penetrate basal rupture.
--	Shaded gray to indicate inclinometer is no longer monitored.

NOTES:

- * Original SI-1 installed in 1978, and was destroyed.
- SI-65 (installed in 1979) was renamed to SI-1
- ** Original SI-2 installed in 1978, and was destroyed.
- SI-90 (installed in 1979) was renamed to SI-2
- *** Referenced to current depth of SI (see note below)
- ****SI-4, SI-7, and SI-10 were extended 6 feet upwards during reconstruction of the road in 1999 and interpretations are referenced to their current depth.



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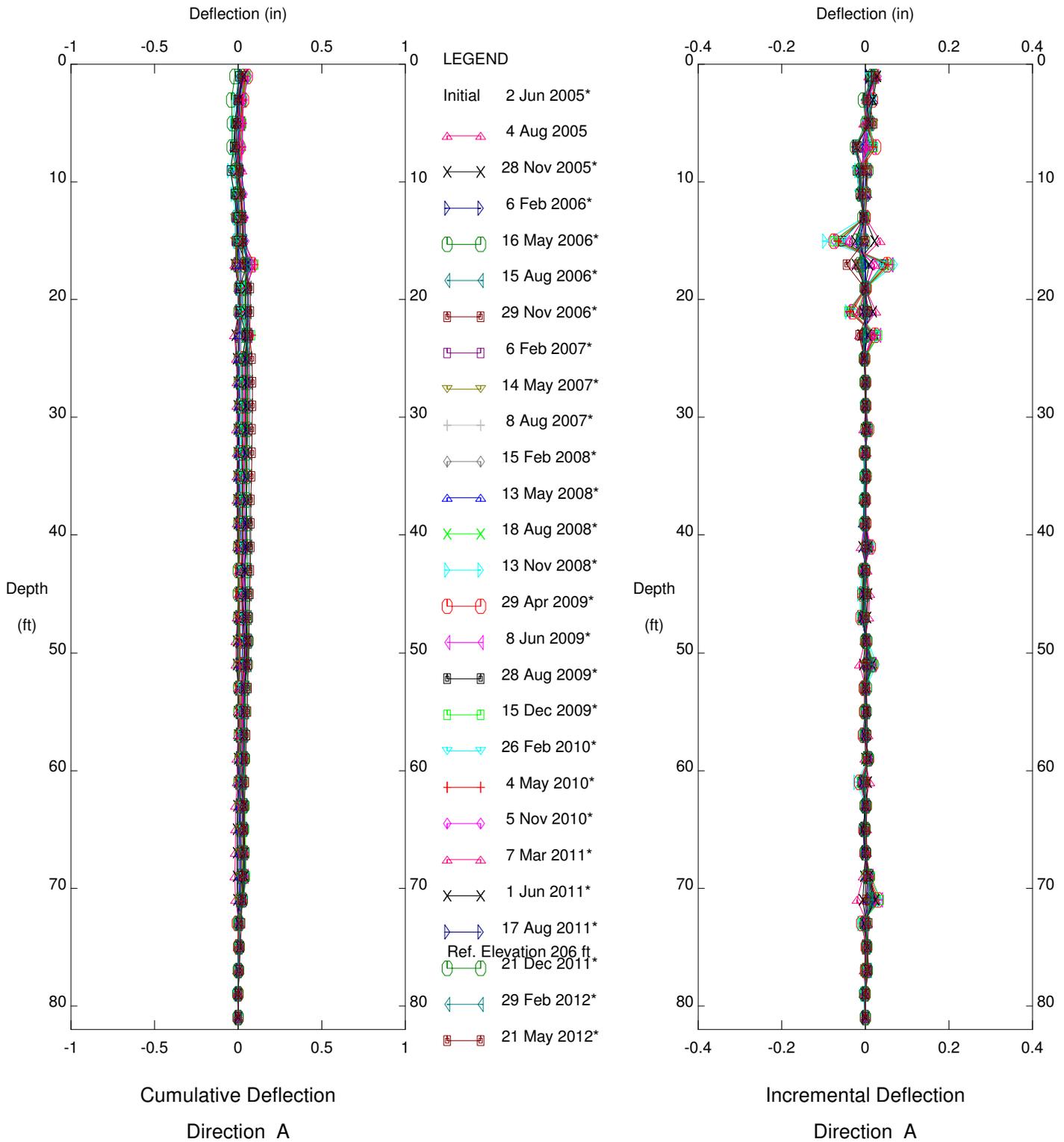
CALLE DEL BARCO, Inclinometer SI-4

Depth of readings = 78 ft

Sets marked * include zero shift and/or rotation corrections.



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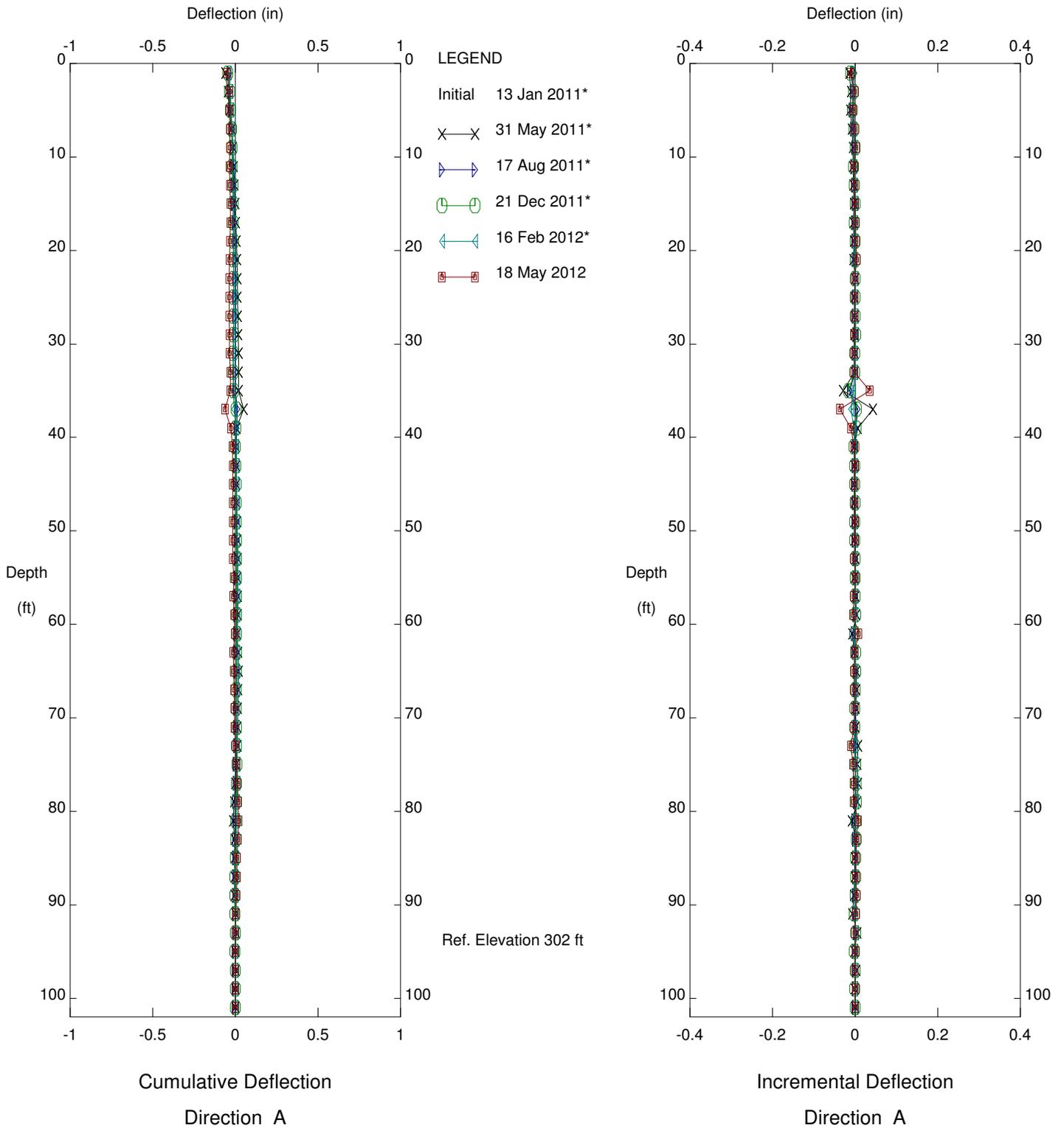
CALLE DEL BARCO, Inclinator SI-4

Depth of readings = 78 ft

Sets marked * include zero shift and/or rotation corrections.



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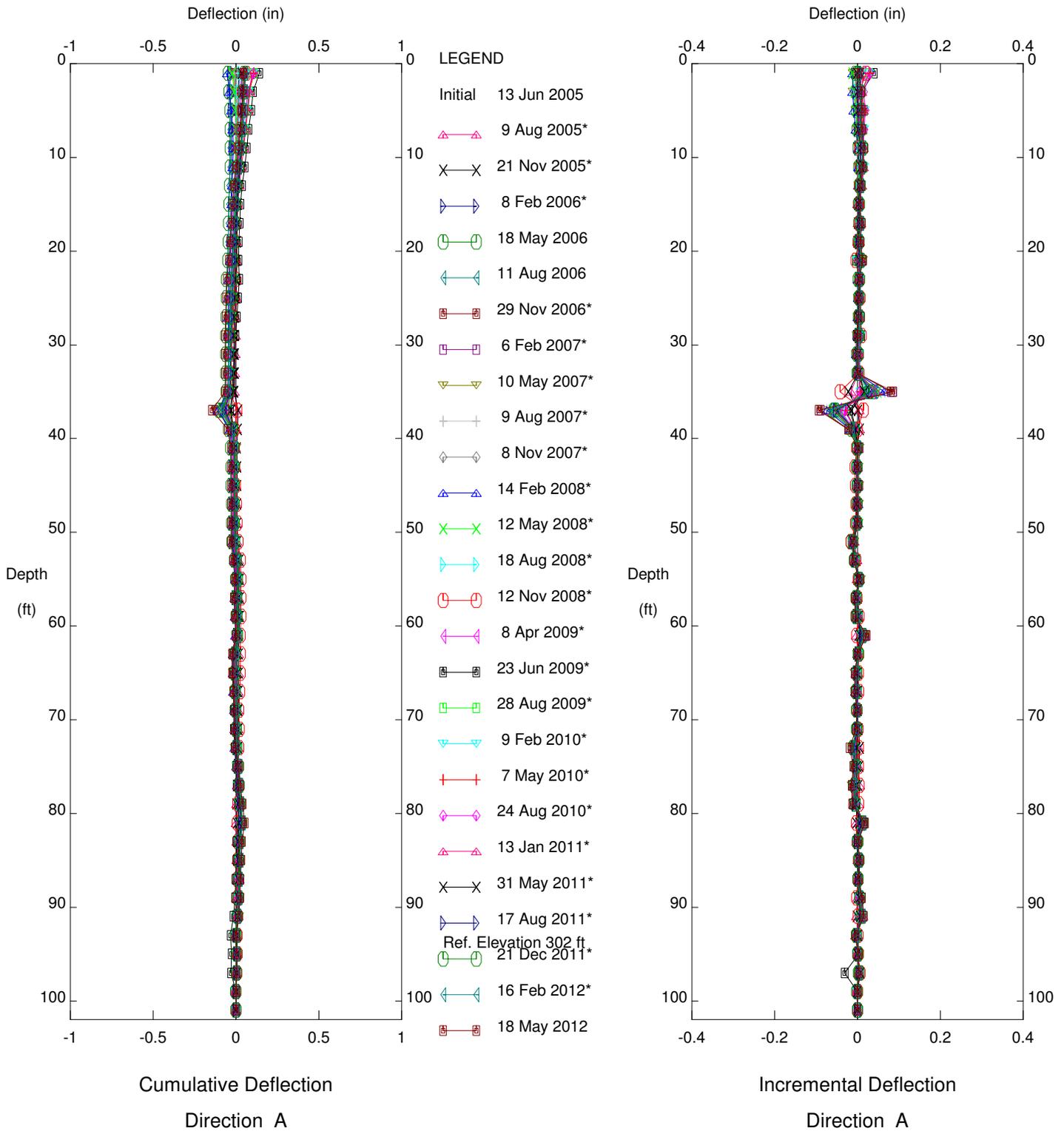
CALLE DEL BARCO, Inclinometer SI-5

Depth of readings = 96 ft

Sets marked * include zero shift and/or rotation corrections.



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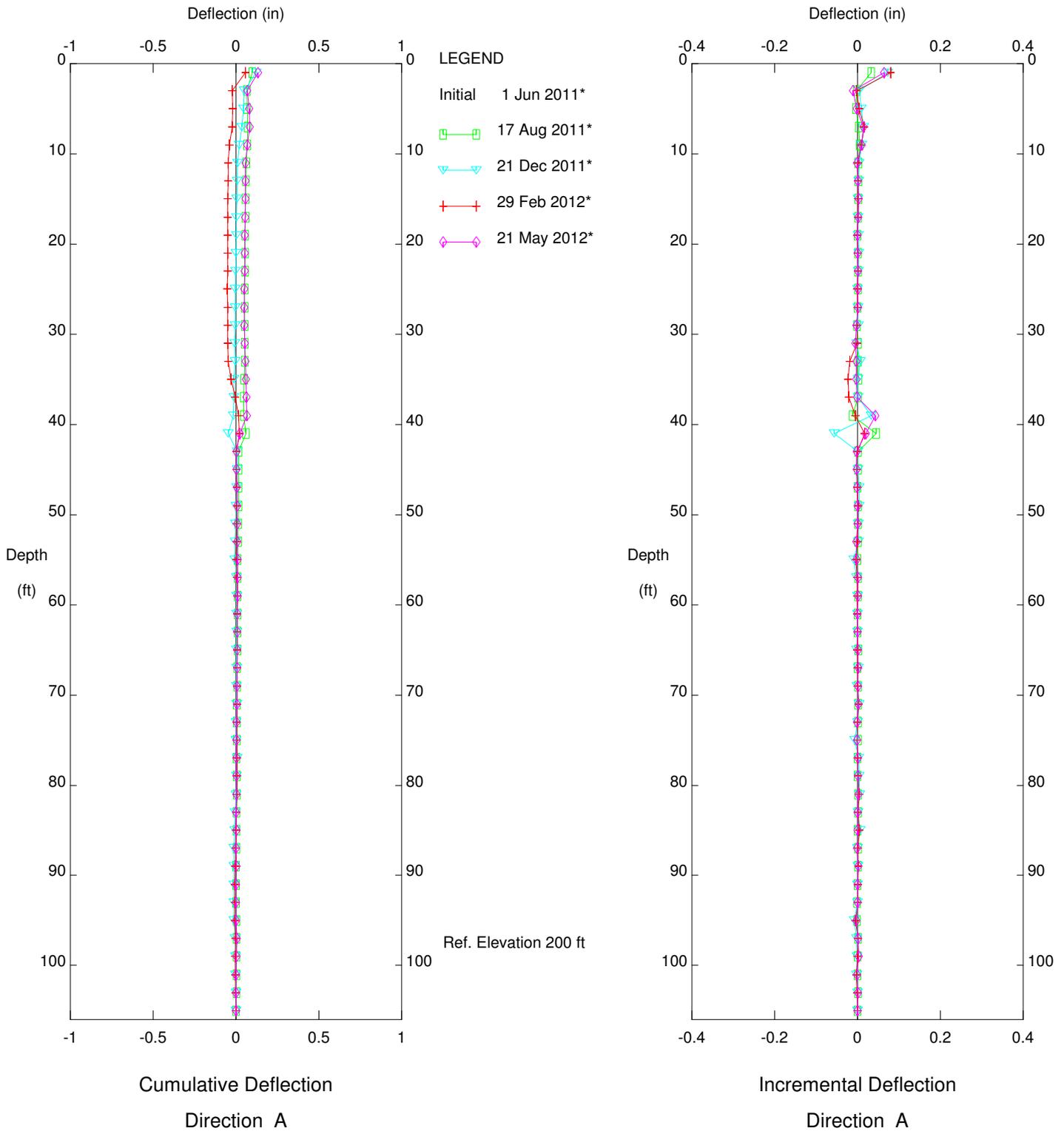
CALLE DEL BARCO, Inclinator SI-5

Depth of readings = 96 ft

Sets marked * include zero shift and/or rotation corrections.



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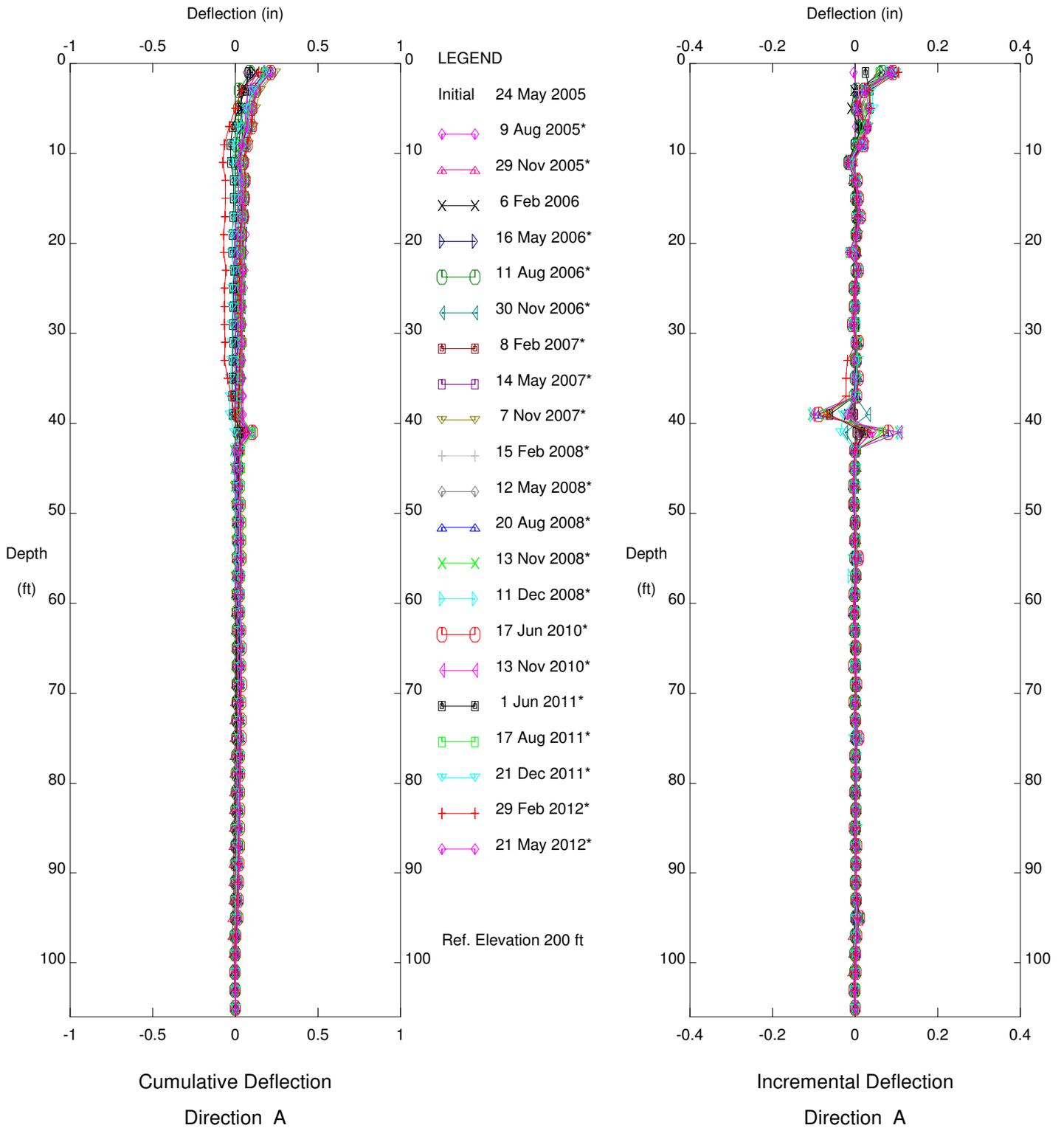
CALLE DEL BARCO, Inclinometer SI-7

Depth of readings = 102 ft

Sets marked * include zero shift and/or rotation corrections.



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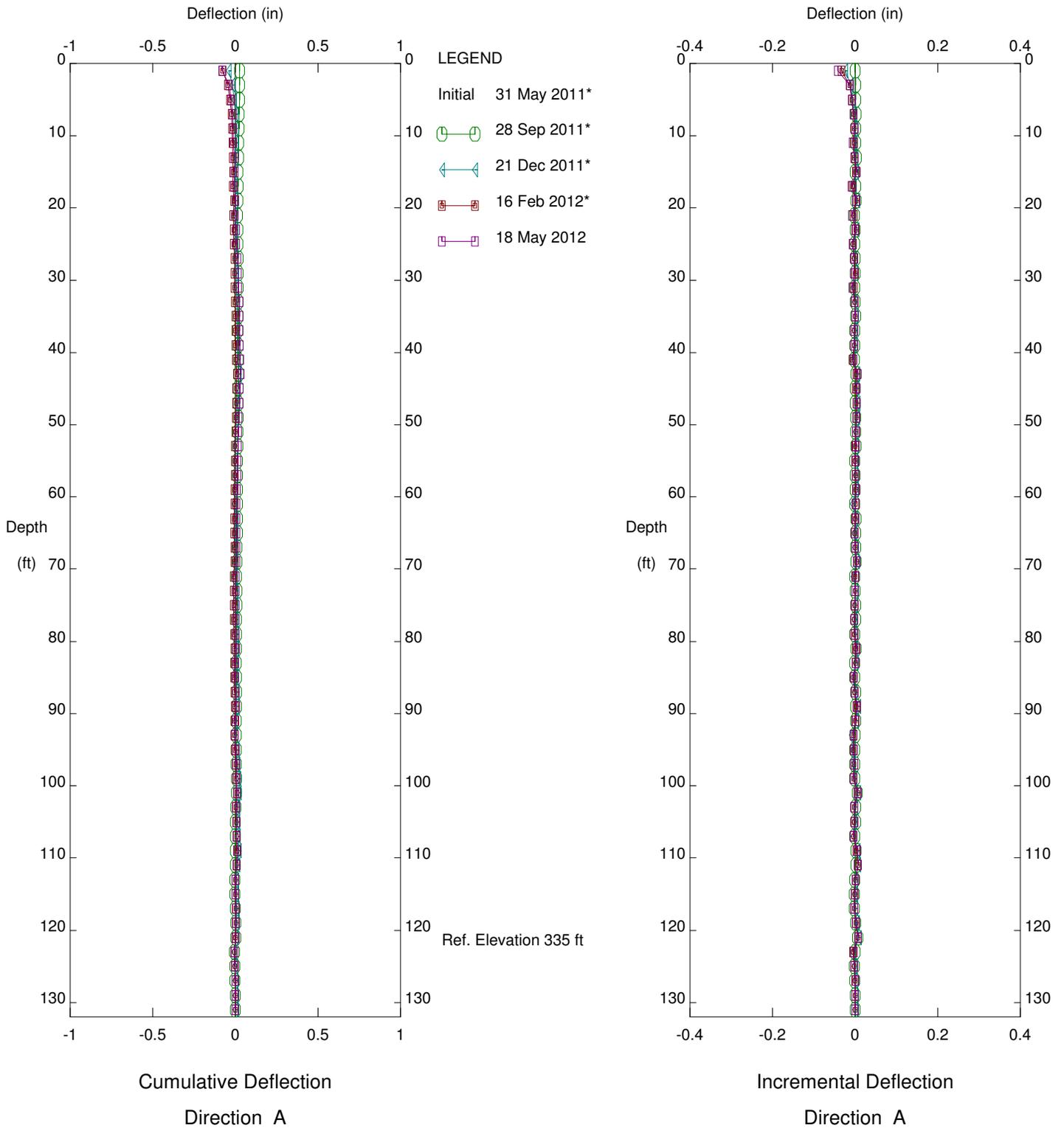
CALLE DEL BARCO, Inclinometer SI-7

Depth of readings = 102 ft

Sets marked * include zero shift and/or rotation corrections.



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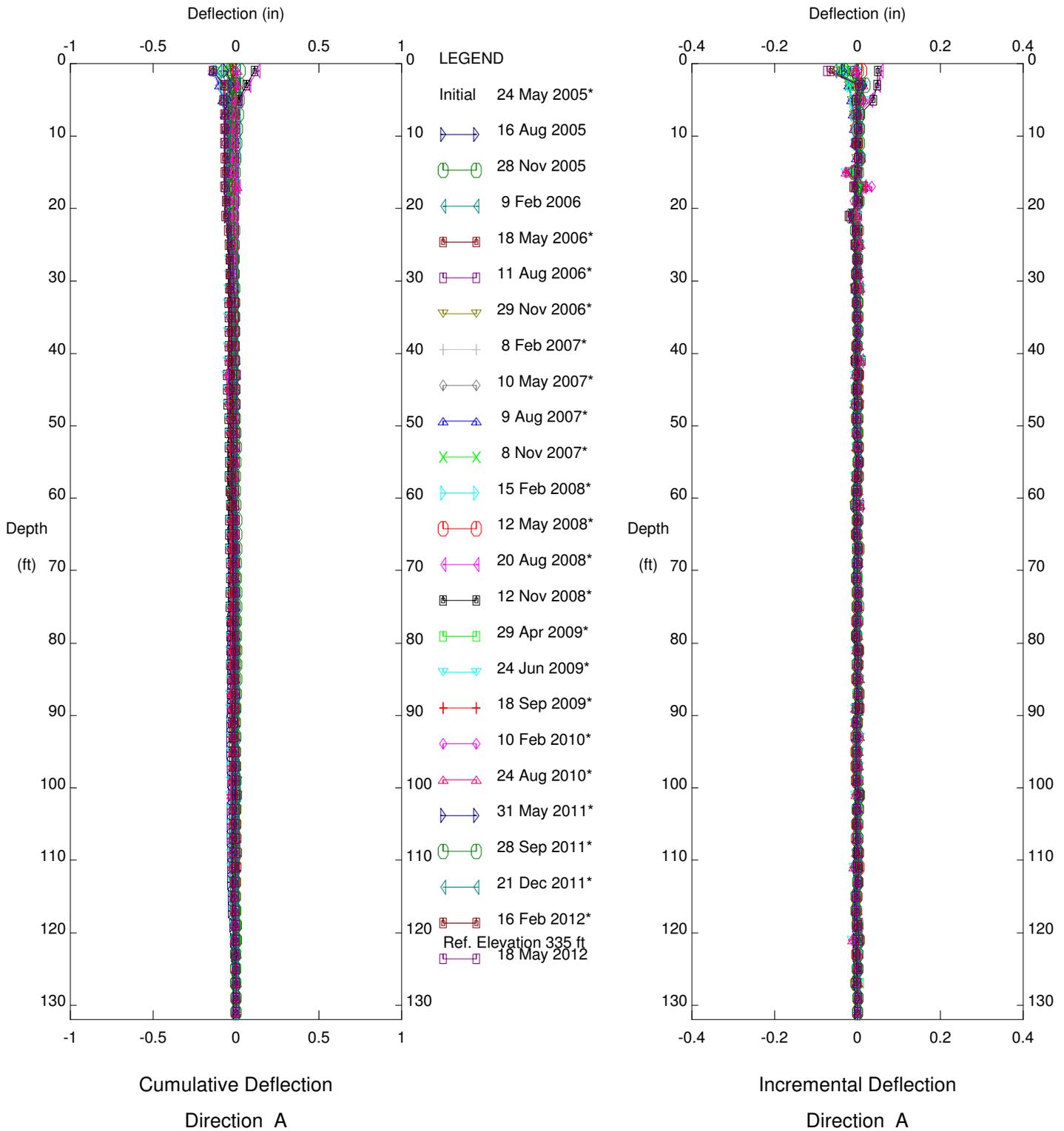
CALLE DEL BARCO, Inclinometer SI-8

Depth of readings = 128 ft

Sets marked * include zero shift and/or rotation corrections.



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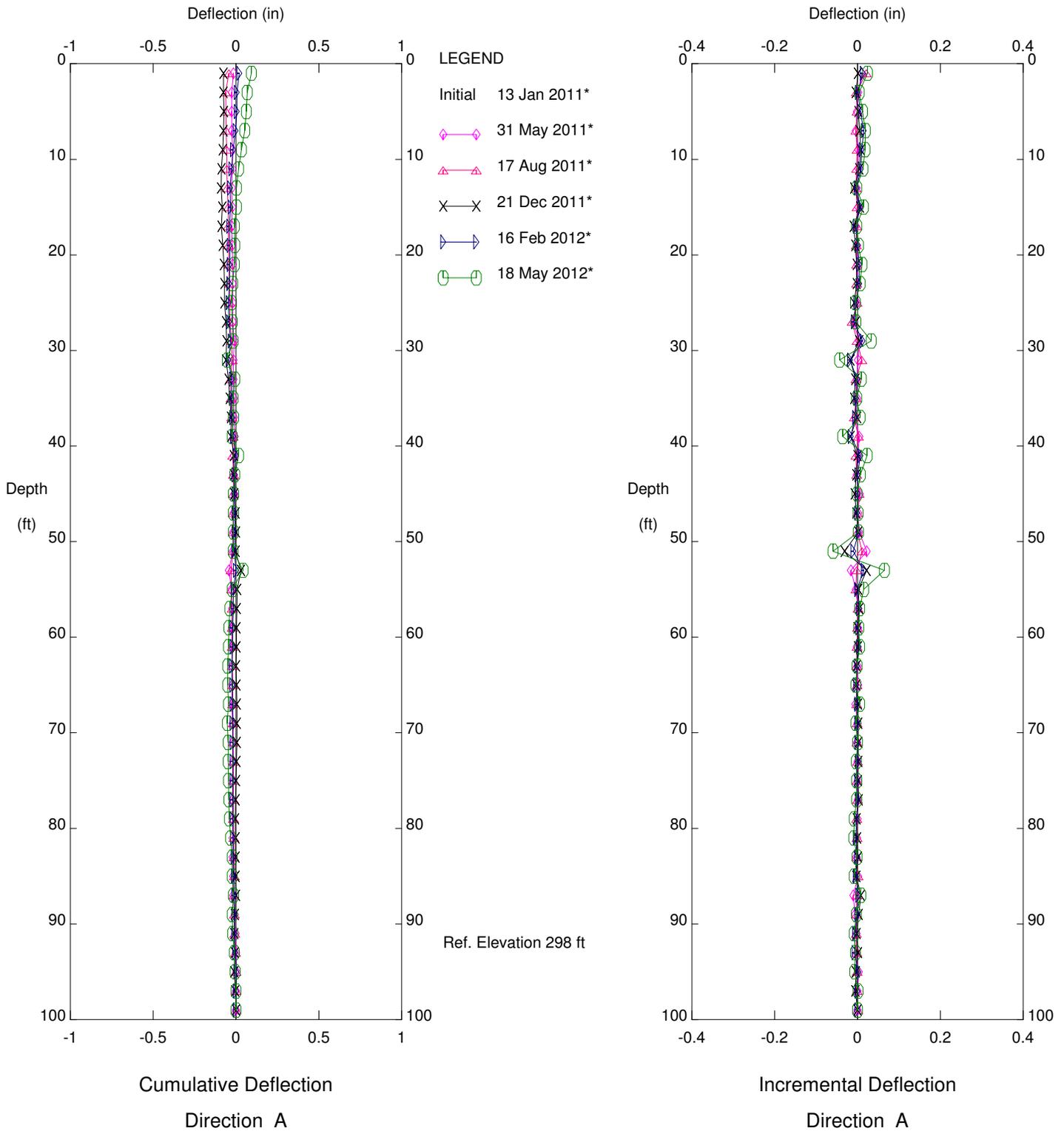
CALLE DEL BARCO, Inclinometer SI-8

Depth of readings = 128 ft

Sets marked * include zero shift and/or rotation corrections.



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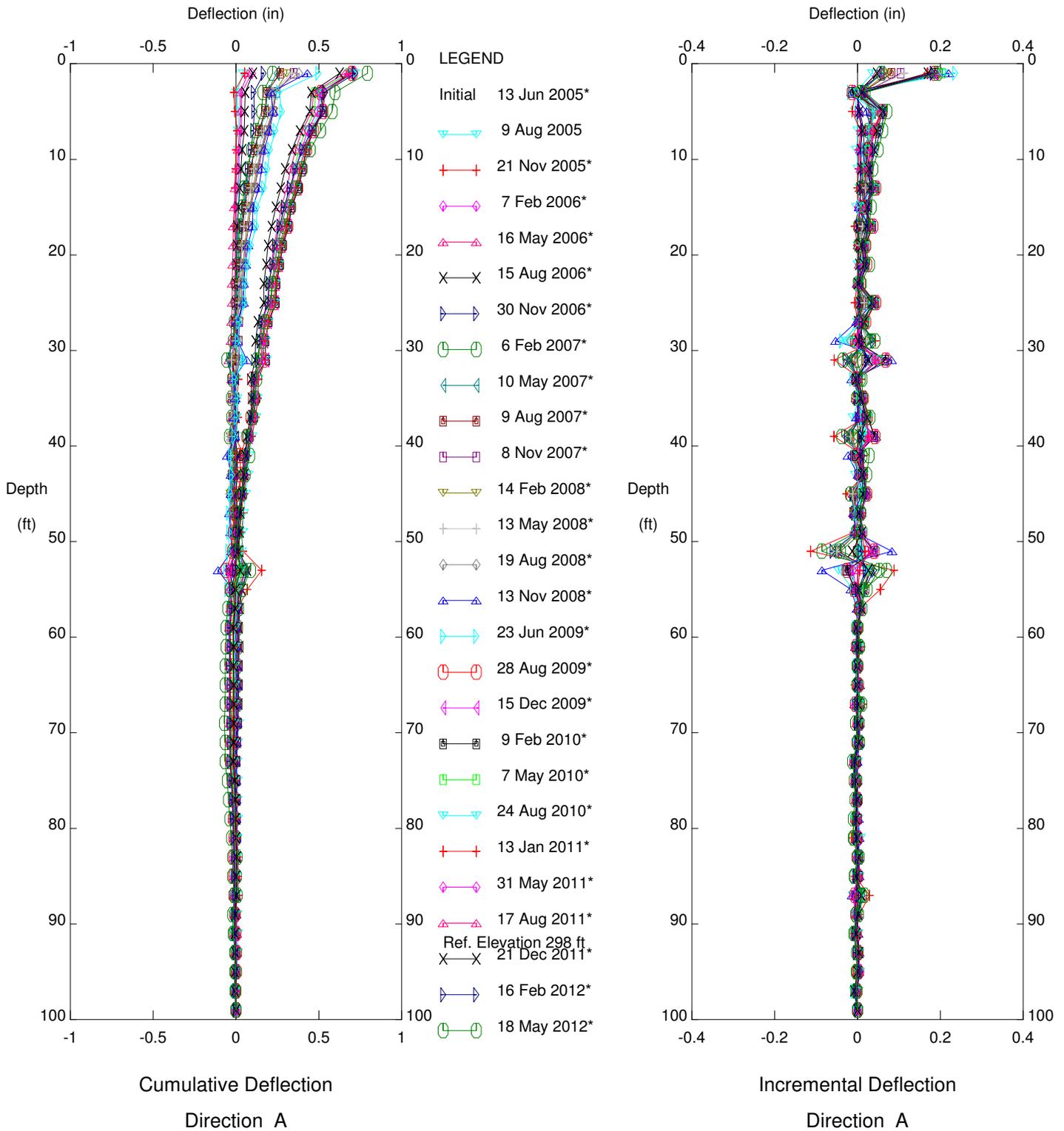
CALLE DEL BARCO, Inclinometer SI-9

Depth of Readings = 96 ft

Sets marked * include zero shift and/or rotation corrections.



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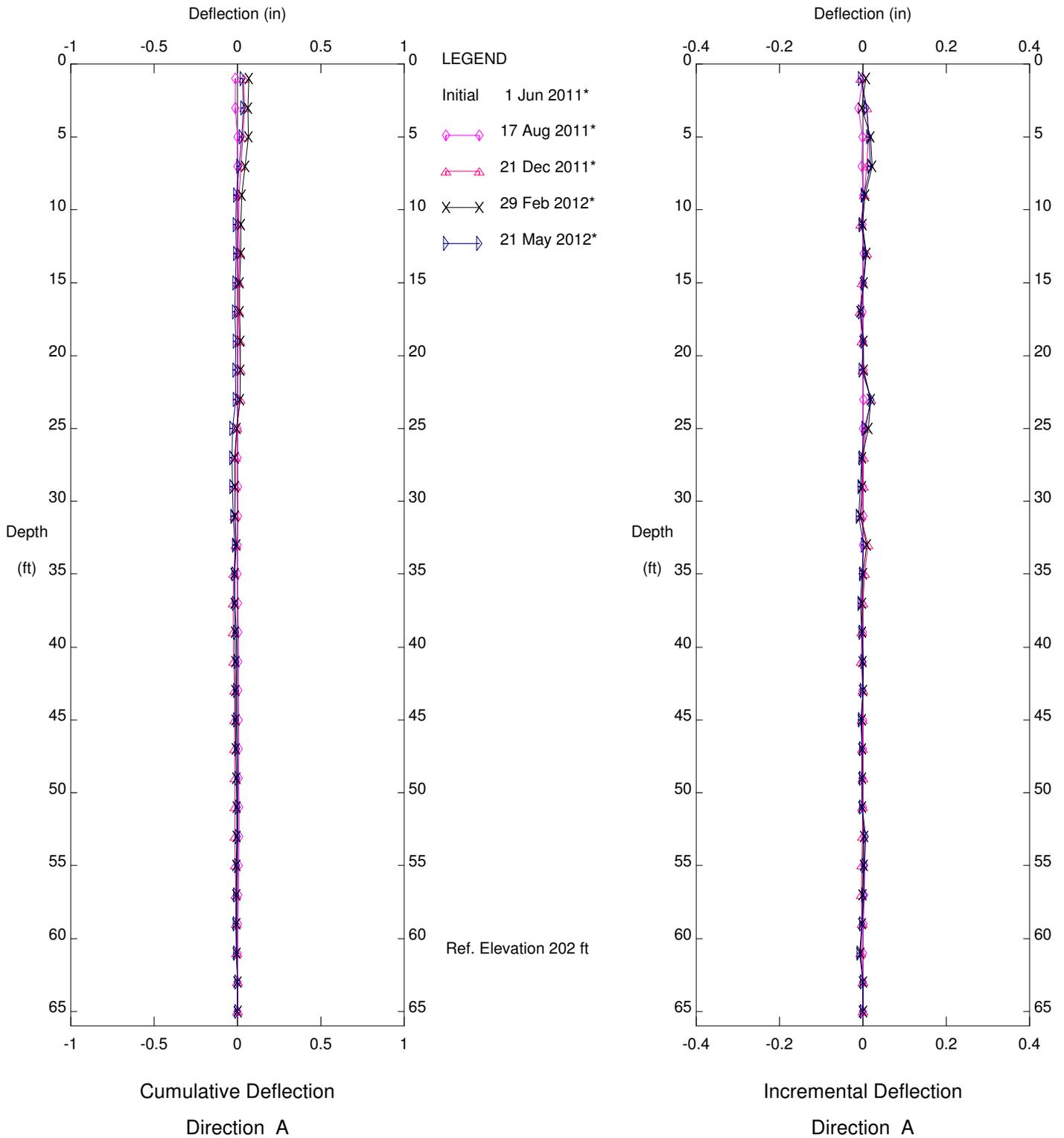
CALLE DEL BARCO, Inclinometer SI-9

Depth of Readings = 96 ft

Sets marked * include zero shift and/or rotation corrections.



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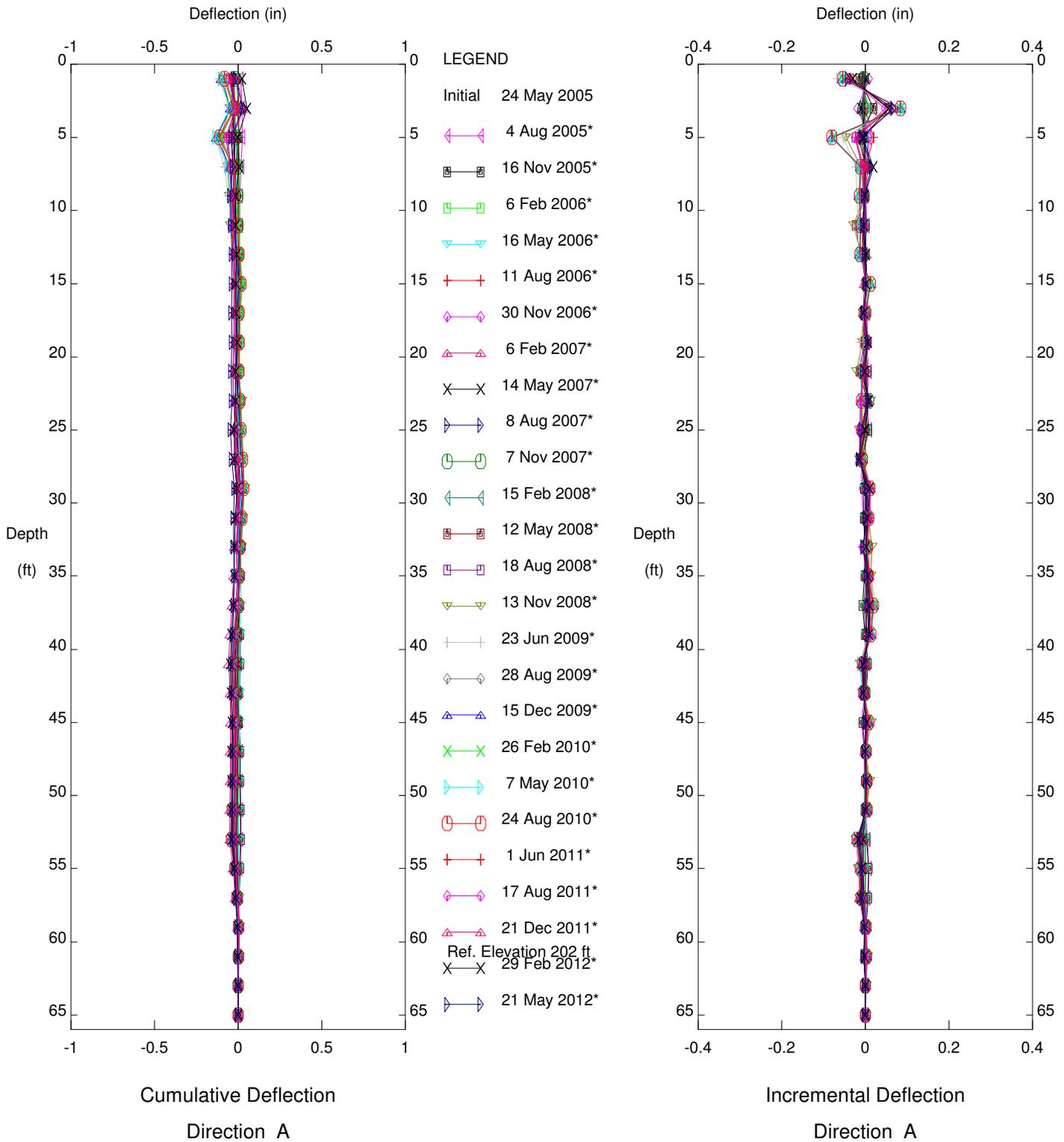
CALLE DEL BARCO, Inclinometer SI-10

Depth of readings = 62 ft

Sets marked * include zero shift and/or rotation corrections.



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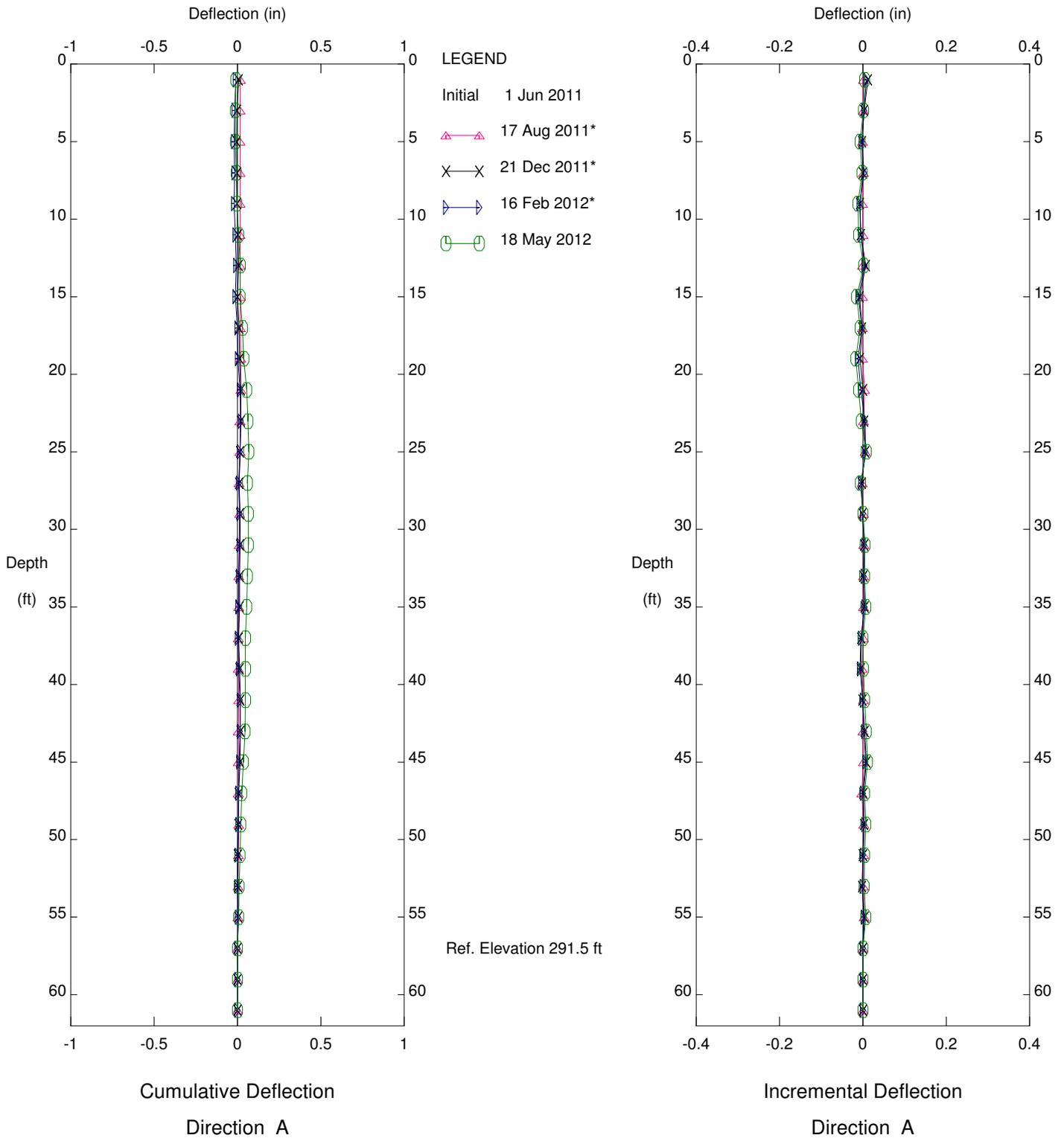
CALLE DEL BARCO, Inclinometer SI-10

Depth of readings = 62 ft

Sets marked * include zero shift and/or rotation corrections.



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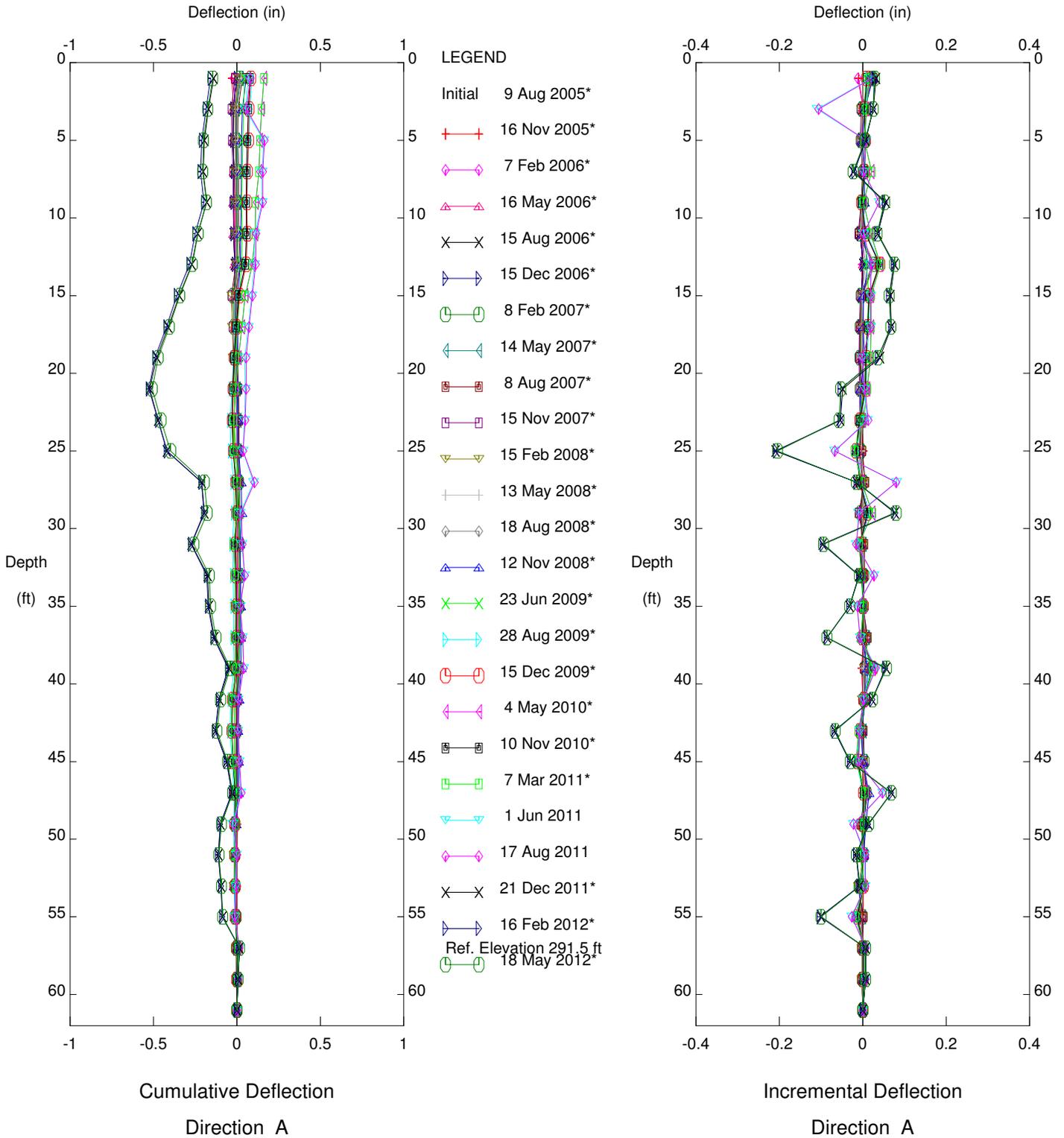
CALLE DEL BARCO, Inclinometer SI-11

Depth of readings = 57 ft

Sets marked * include zero shift and/or rotation corrections.



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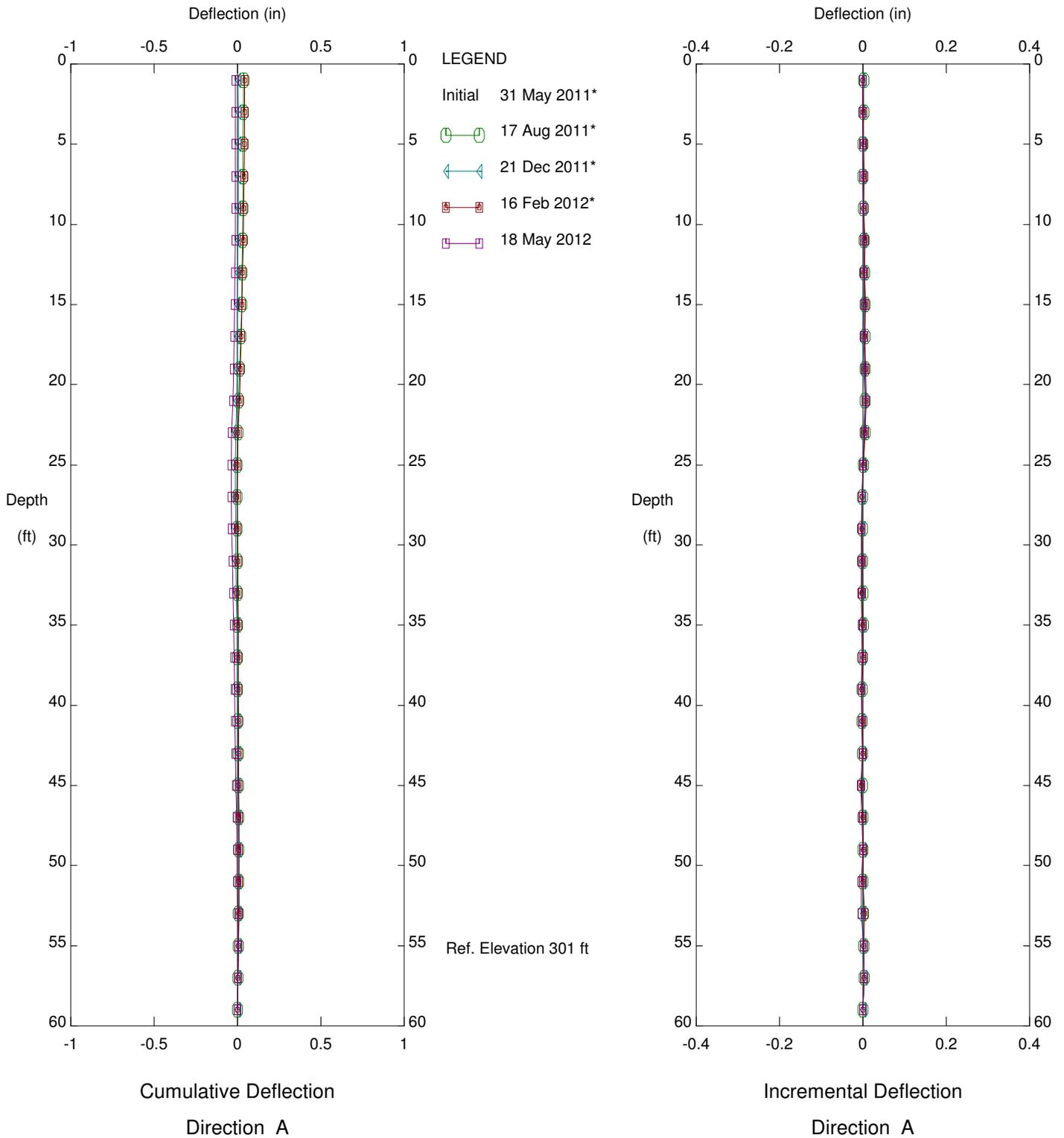
CALLE DEL BARCO, Inclinometer SI-11

Depth of readings = 57 ft

Sets marked * include zero shift and/or rotation corrections.



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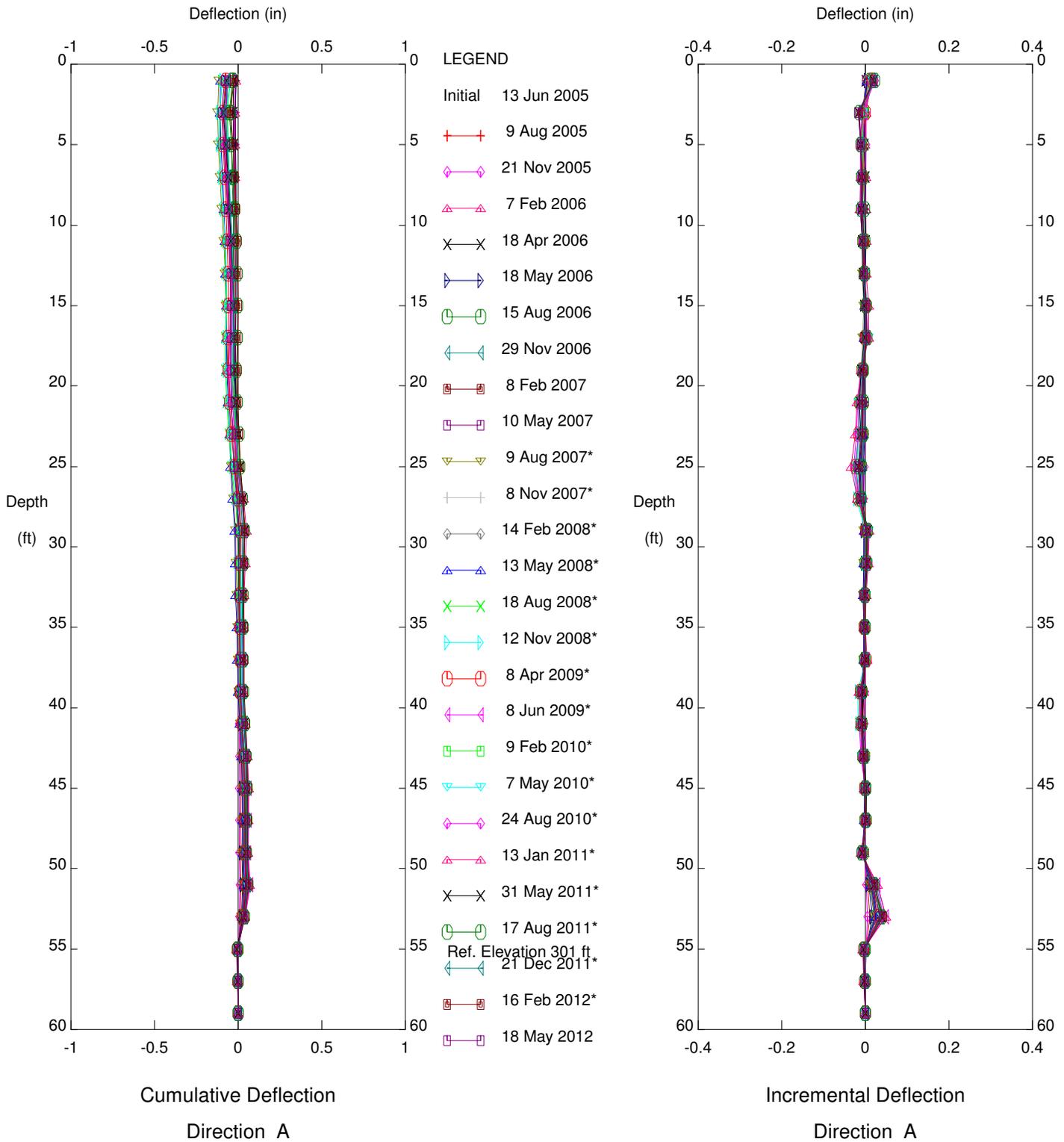
CALLE DEL BARCO, Inclinometer SI-12

Depth of readings = 56 ft

Sets marked * include zero shift and/or rotation corrections.



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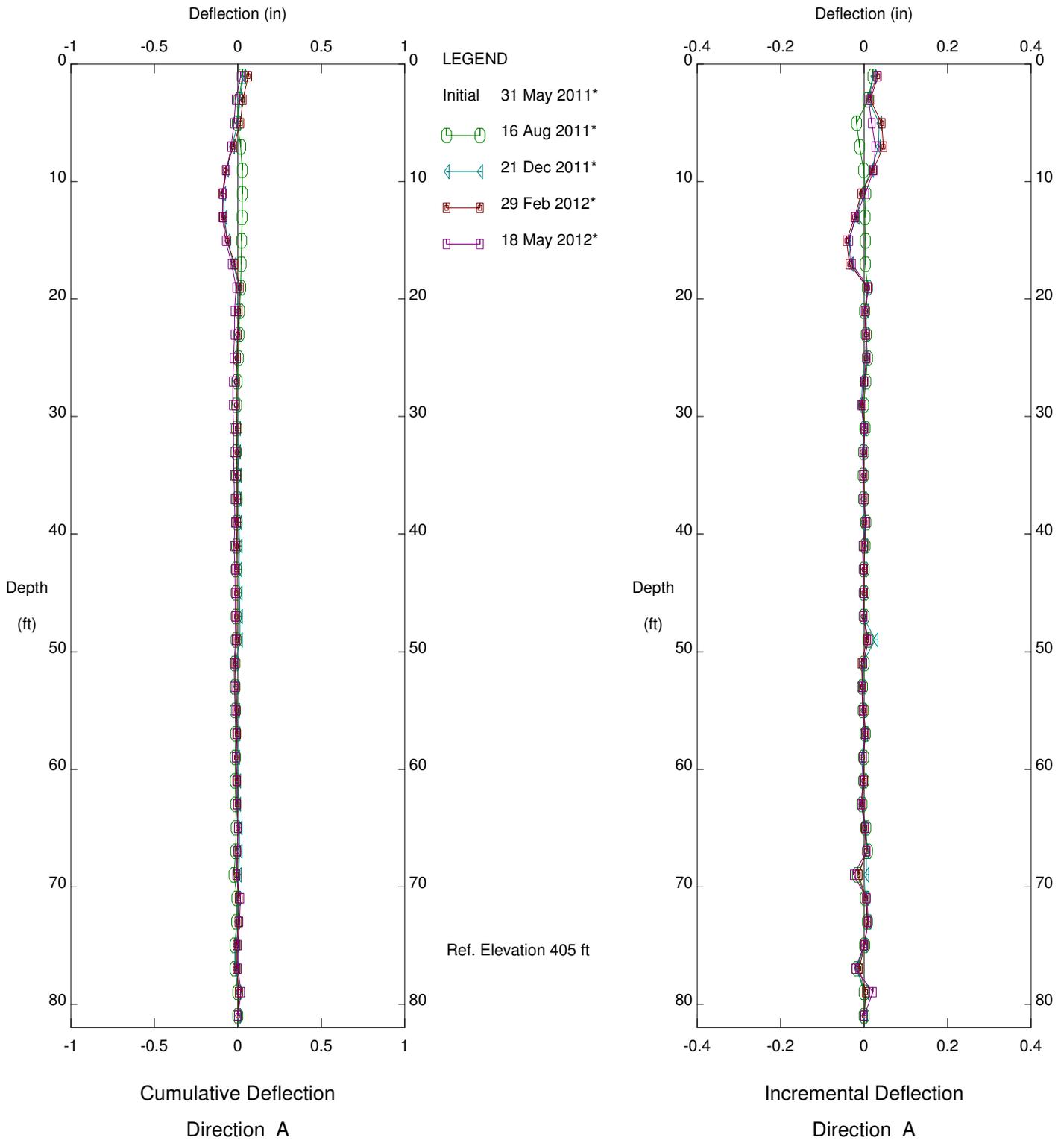
CALLE DEL BARCO, Inclinometer SI-12

Depth of readings = 56 ft

Sets marked * include zero shift and/or rotation corrections.



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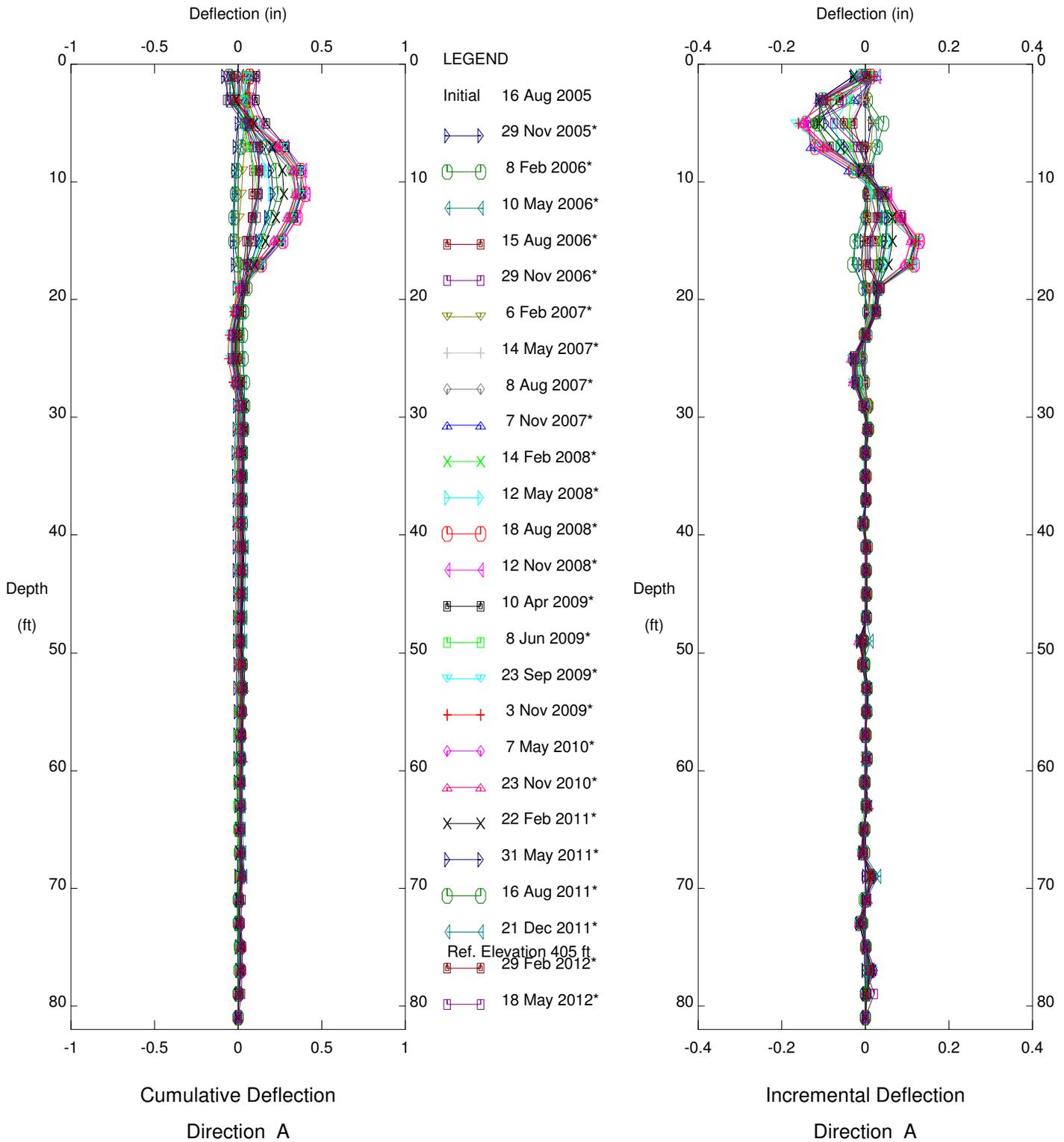
CALLE DEL BARCO, Inclinometer SI-13

Depth of readings = 78 ft

Sets marked * include zero shift and/or rotation corrections.



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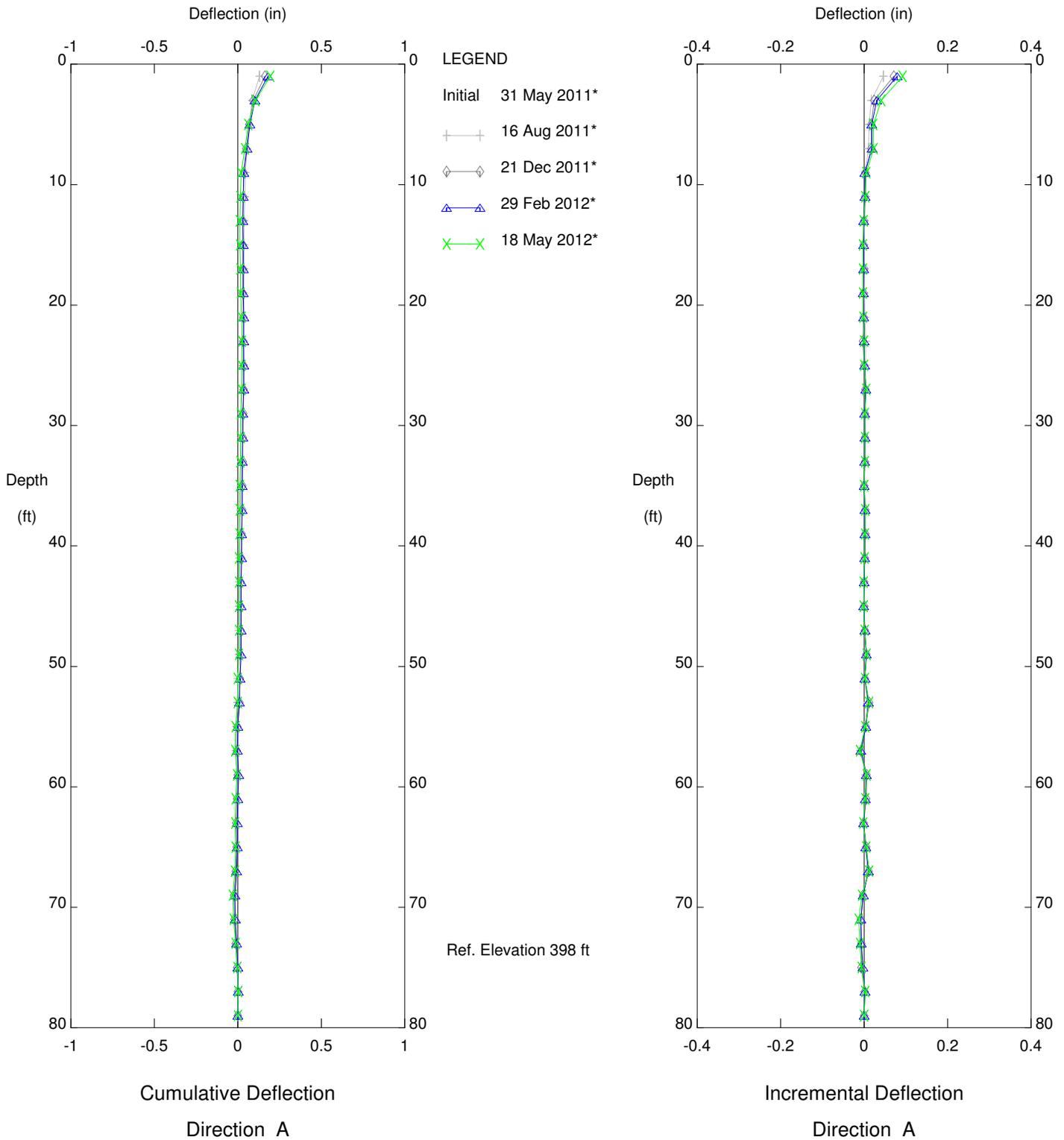
CALLE DEL BARCO, Inclinometer SI-13

Depth of readings = 78 ft

Sets marked * include zero shift and/or rotation corrections.



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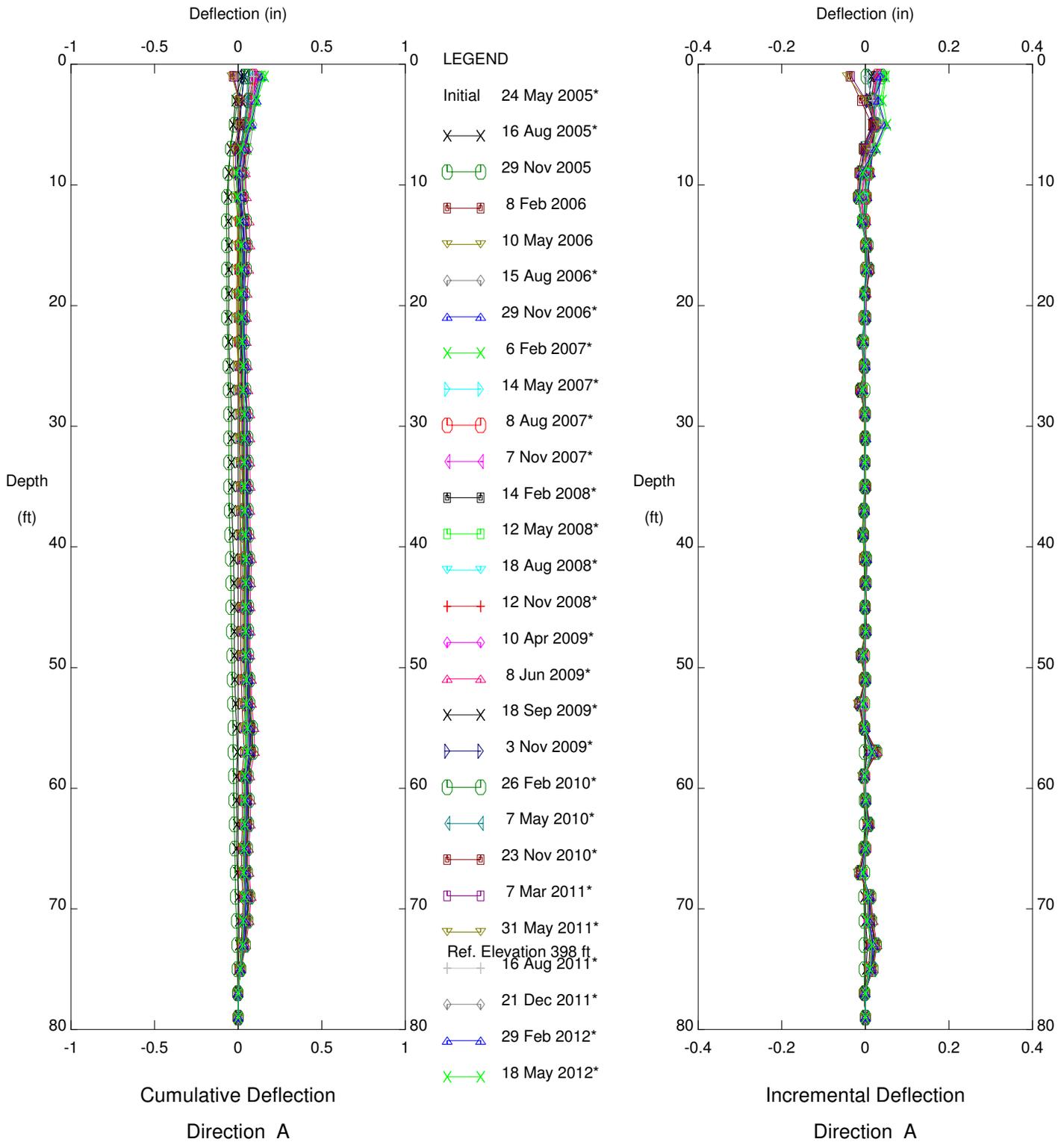
CALLE DEL BARCO, Inclinometer SI-14

Depth of readings = 76 ft

Sets marked * include zero shift and/or rotation corrections.



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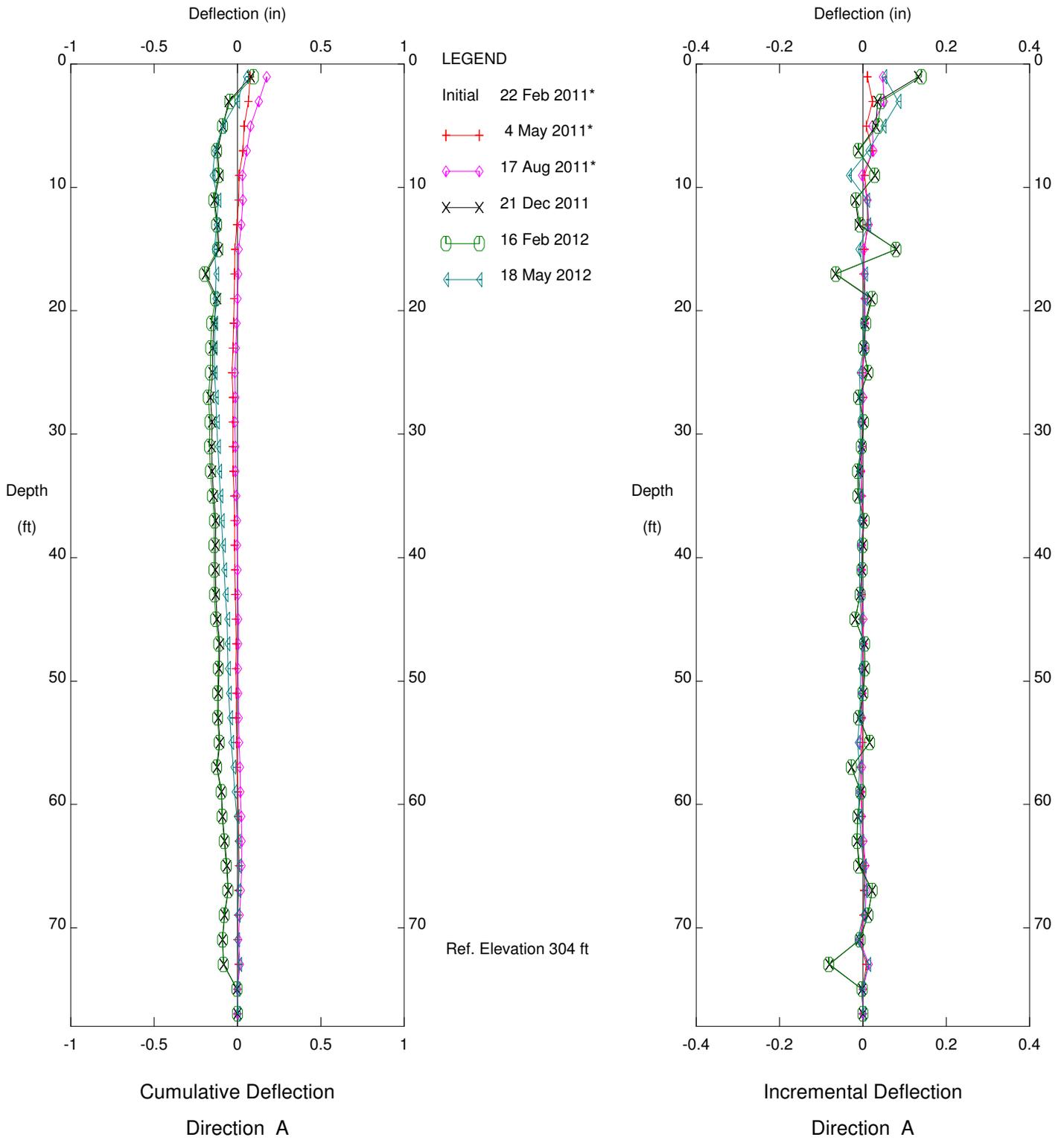
CALLE DEL BARCO, Inclinator SI-14

Depth of readings = 76 ft

Sets marked * include zero shift and/or rotation corrections.



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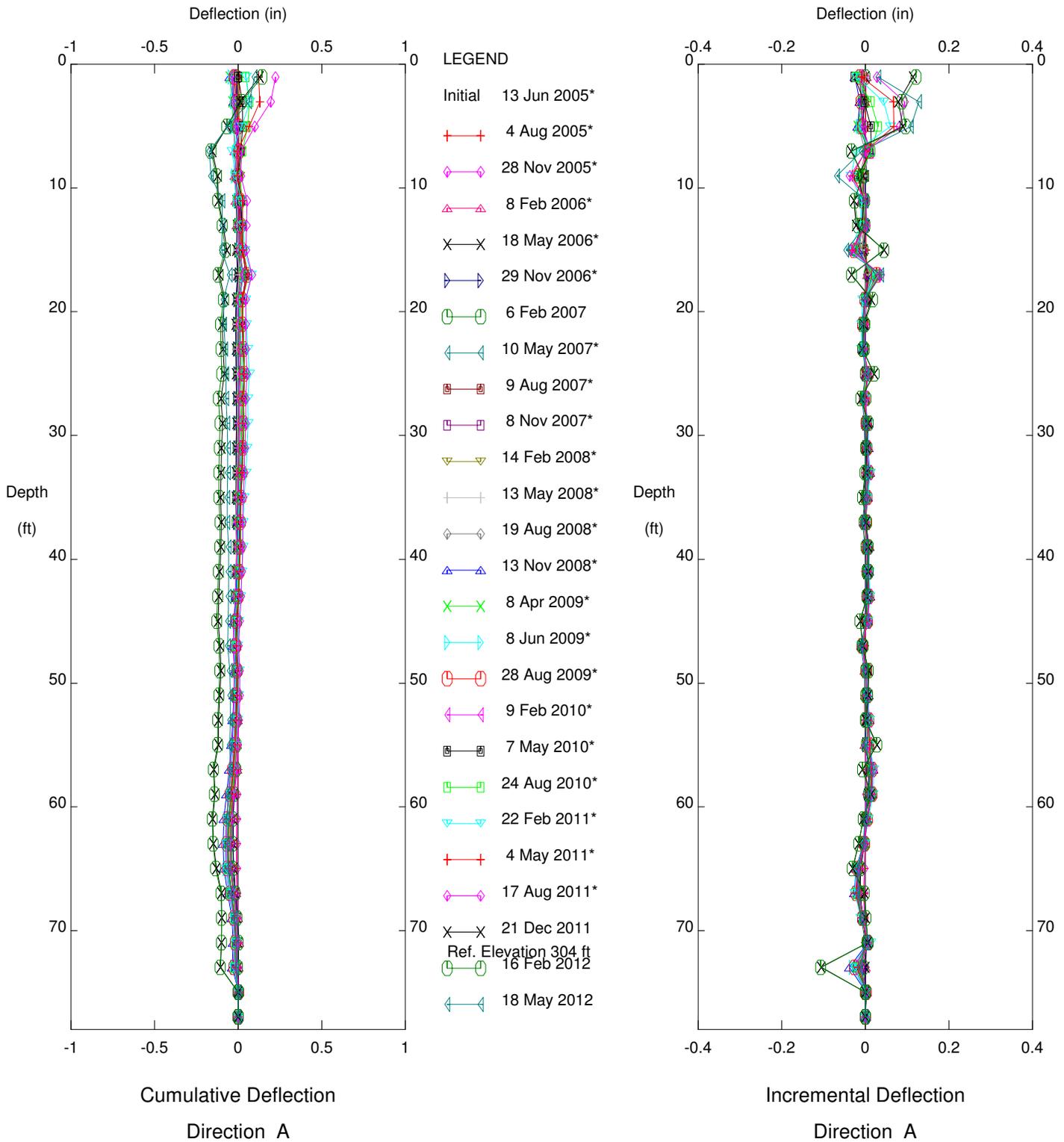
CALLE DEL BARCO, Inclinometer SI-15

Depth of readings = 72 ft

Sets marked * include zero shift and/or rotation corrections.



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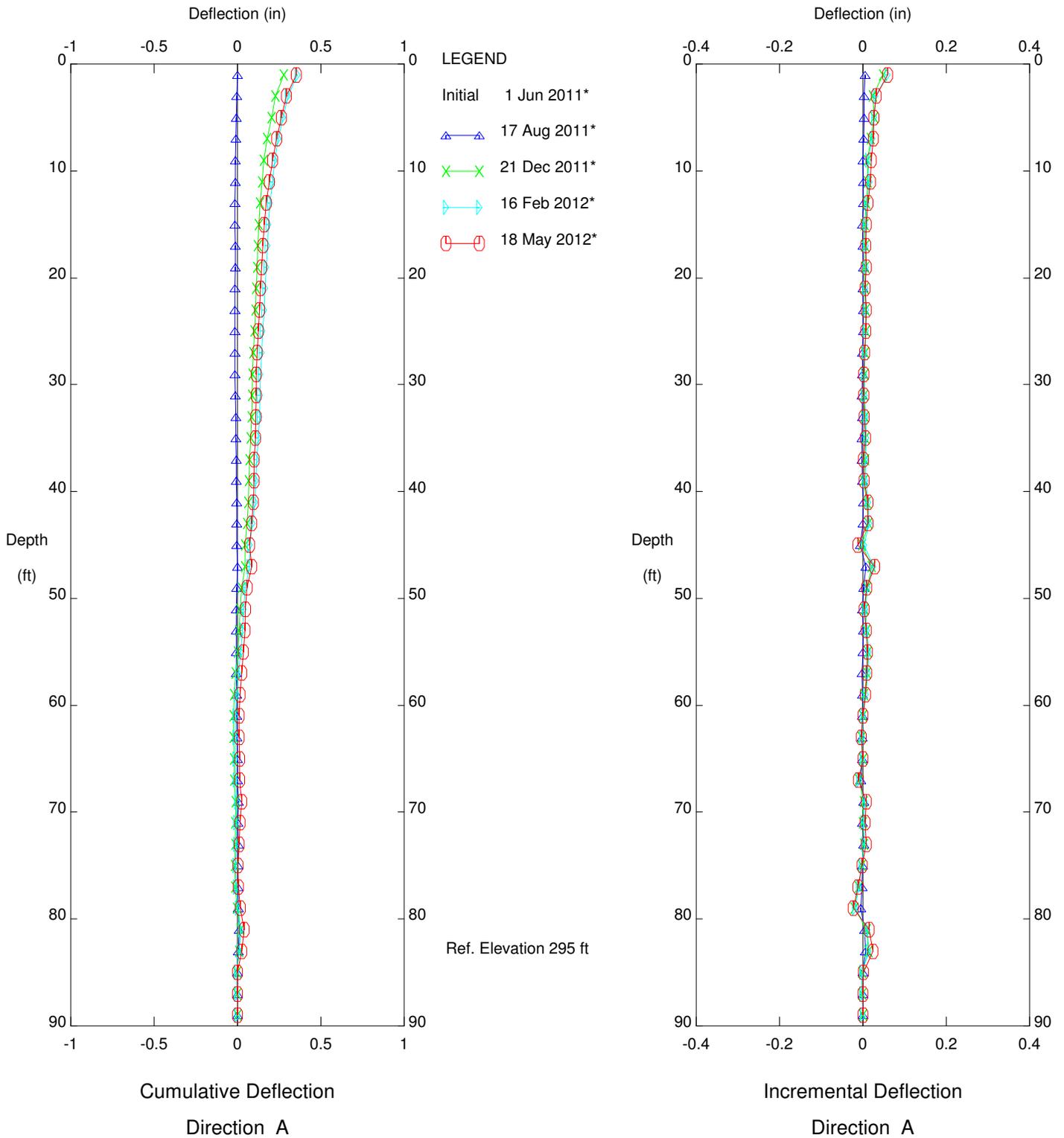
CALLE DEL BARCO, Inclinometer SI-15

Depth of readings = 72 ft

Sets marked * include zero shift and/or rotation corrections.



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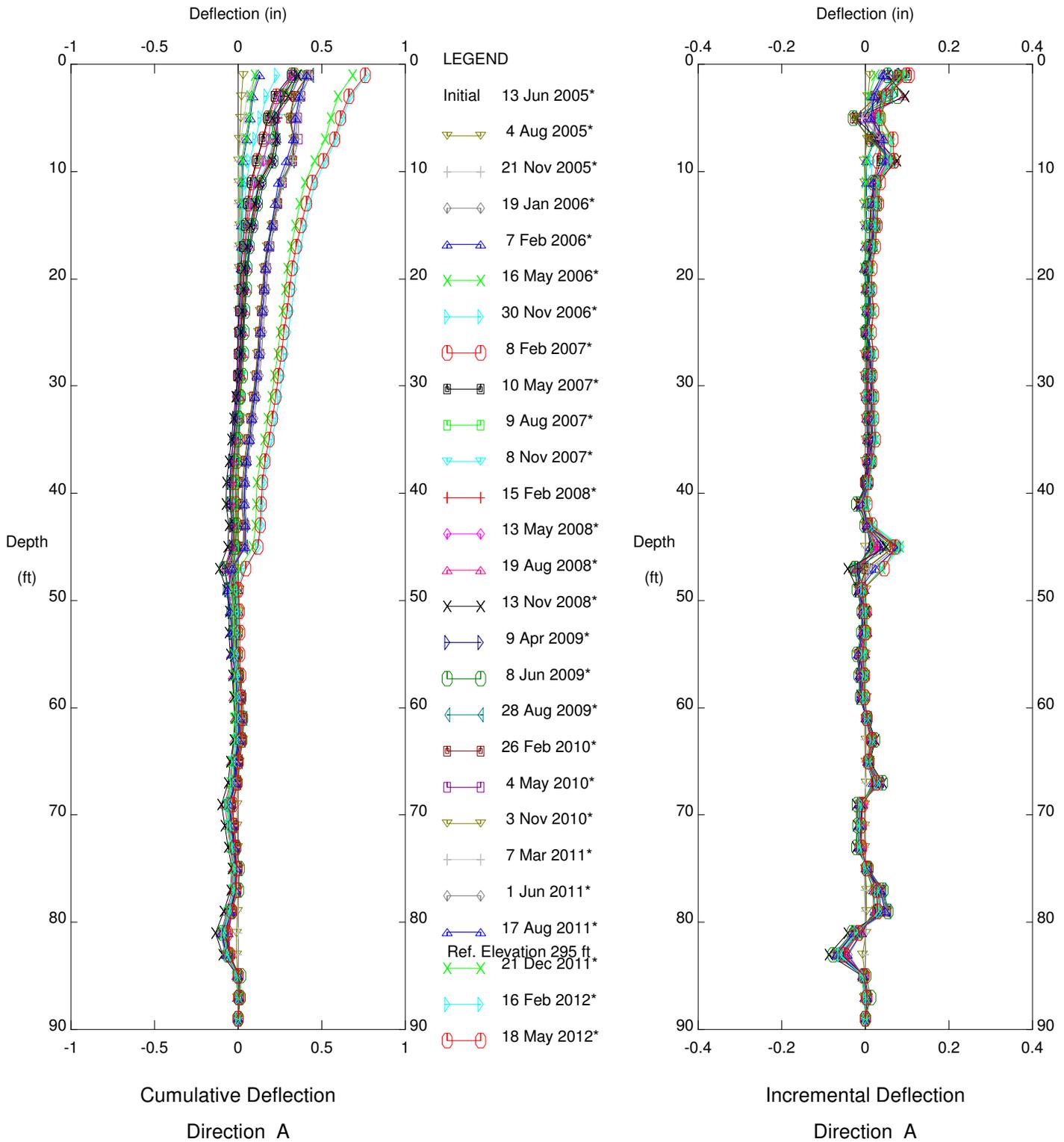
CALLE DEL BARCO, Inclinometer SI16

Depth of readings = 86 ft

Sets marked * include zero shift and/or rotation corrections.



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CALLE DEL BARCO, Inclinometer SI16

Depth of readings = 86 ft

Sets marked * include zero shift and/or rotation corrections.