TABLE 1. The 7 hail diagnostic parameters and the characteristics associated with each.

Parameter	**Type**	**Resolution**
POSH	Cell-based	Single-point
MEHS	Cell-based	Single-point
4 km VIL (**VIL**)	Grid-based	4 km x 4 km
1 km VIL (**DVL**) Capped at 80	Grid-based	1° x 1 km
4 km VIL Density (**VILD**)	Grid-based	4 km x 4 km with ET
1 km VIL Density (**DVLD**)	Grid-based	1° x 1 km with EET
Enhanced VIL Density (**EVILD**)	Grid-based	1° x 1 km with dilated EET

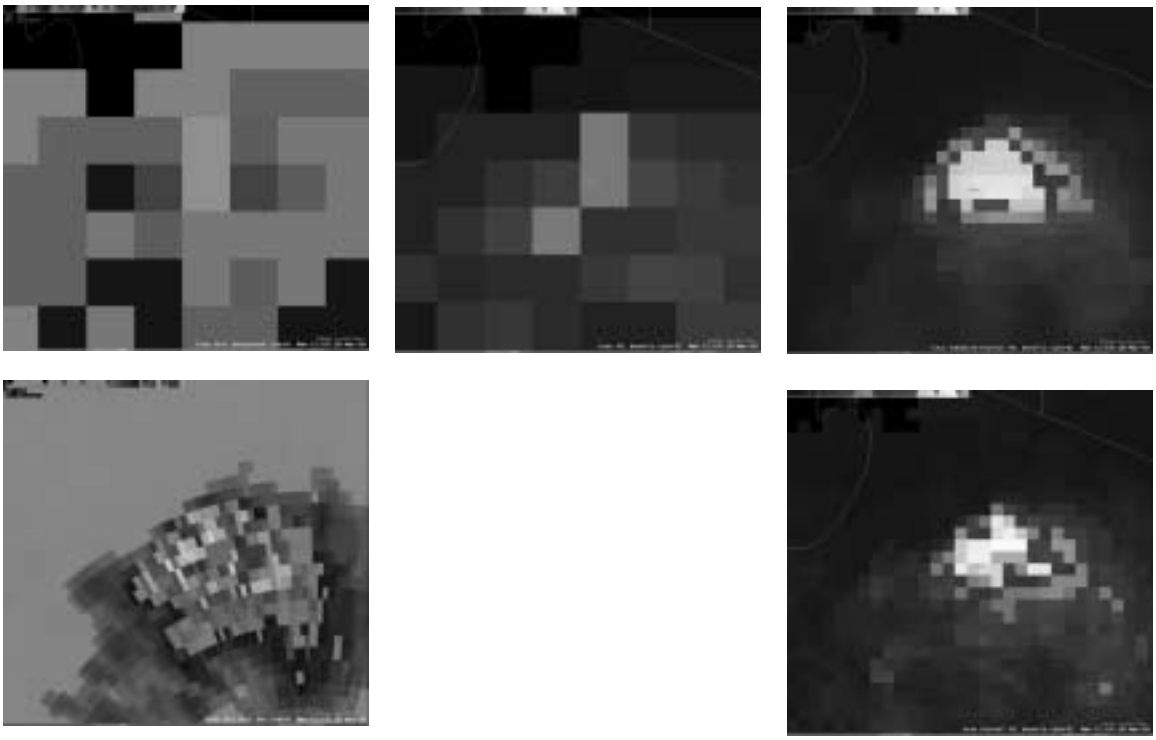


FIGURE 1. The 5 grid-based hail diagnostic parameters as they appear on an AWIPS D2D display. Row one from left: 4 km VIL (VIL), 4 km VIL Density (VILD), and Enhanced VIL Density (EVILD). Row 2 from left: 1 km VIL (DVL) and 1 km VIL Density (DVILD).

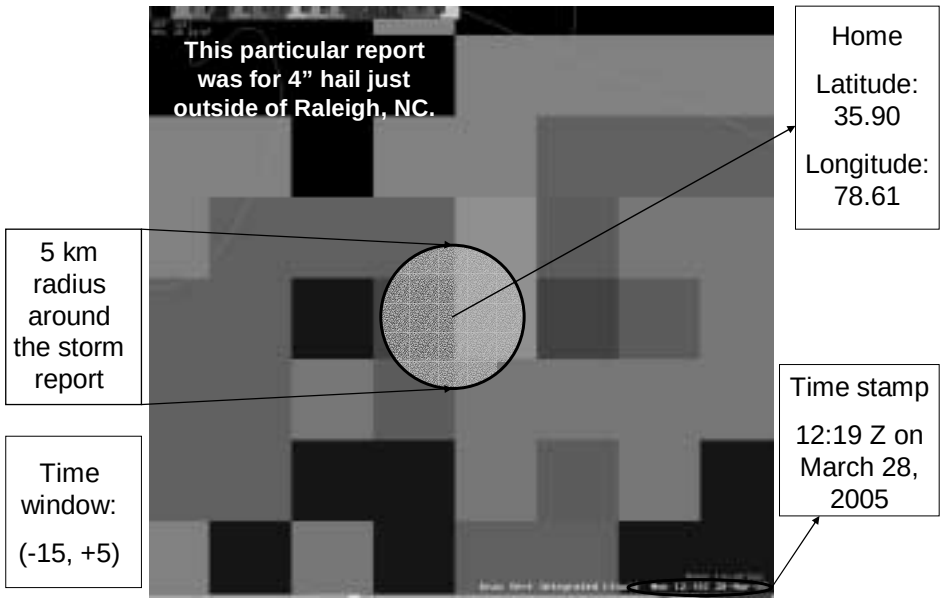


FIGURE 2. An illustration of several aspects of the event verification. By inserting the latitude and longitude, the cursor position stays in the exact spot of the report when recording all 17 products. Using the time stamp in the bottom right corner allows for watching the time window (-15, +5). The black circle around the "home" point signifies the 5 km radius. Features in AWIPS allow for the value of where the cursor is to display to the user, allowing for the value anywhere on the screen to be read and recorded. This particular report shows the 4 km VIL. It so happens that the maximum in the time window occurred in the same time frame as the actual and maximum radius product reading. The value for all three values recorded for 4 km VIL was 35 g/m^2.

TABLE 2. The 11 hail producing storms' date, time of occurrence, number of reports, range of hail size, and the radar that was used to retrieve data. The radar location abbreviations are as follows: Boulder, CO (KFTG), Jackson, KY (KJKL), Dallas-Fort Worth, TX (KFWS), Little Rock, AR (KLZK), Los Angles, CA (KSOX), Norman, OK (KTLX), Pendleton, OR (KPDT), Tampa Bay, FL (KTBW), Boston, MA (KBOX), and Raleigh, NC (KRAX).

Radar ID	Date	Time Range of Reports (UTC)	Number of Used Reports	Size Range of Hail Reports (cm)
KFTG	6 June 1997	1950-1956	4	0.75-1.75
KJKL	22 February 2003	2035-2215	9	0.75-1.00
KFWS	5 April 2003	0133-0228	10	1.75-3.00
KLZK	26 August 2003	2020-2322	8	0.75-1.75
KSOX	12 November 2003	2200-0300	12	0.5
KTLX	21 April 2004	2104-2349	28	0.75-3.00
KPDT	19 July 2004	1915-2315	7	0.75-1.75
KTBW	12 August 2004	1847	1	Null Event
KBOX	20 August 2004	1825-2215	3	0.88-2.00
KLZK	21 February 2005	0255-0450	6	0.75-1.75
KRAX	28 March 2005	1155-1250	13	0.88-4.00

TABLE 3. The 2 x 2 contingency table as well as the equations used to calculate the POD, FAR, CSI, and HSS.

	Observed yes	Observed no
Forecast yes	Hit (a)	False Alarm (b)
Forecast no	Miss (c)	Correct Null (d)

$POD = a/(a + c)$ $FAR = b/(a + b)$

$CSI = a/(a + b + c)$ $HSS = (ad-bc)/[(ad-bc)-(1/2)(b+c)]$

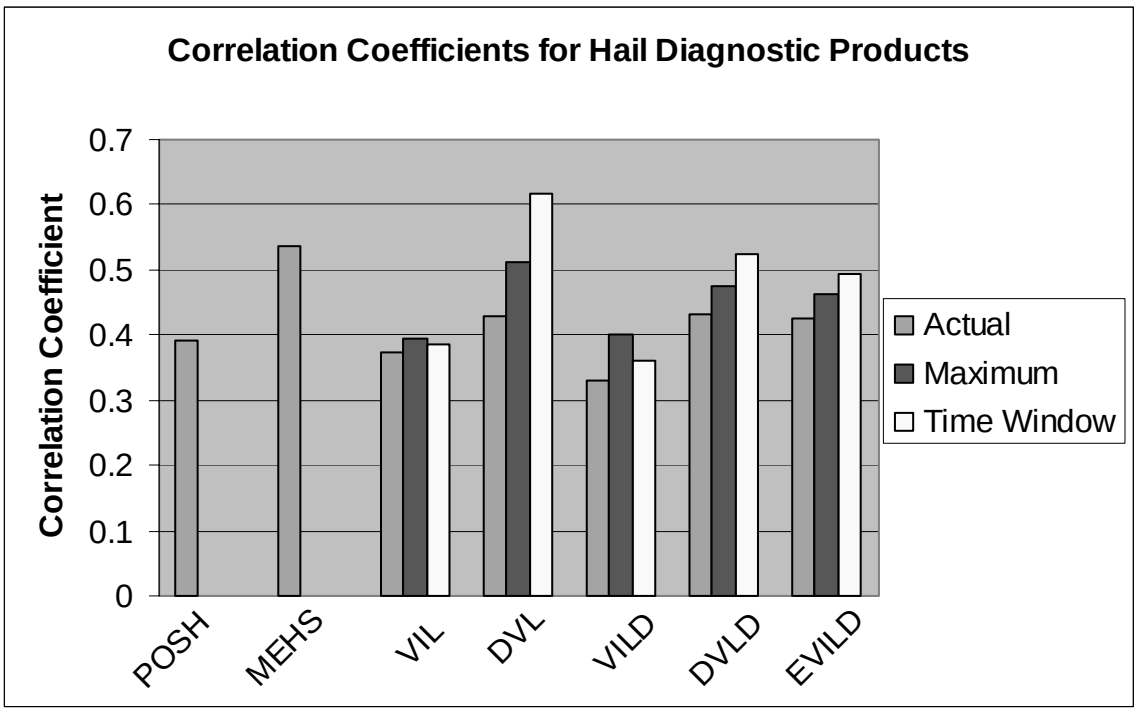
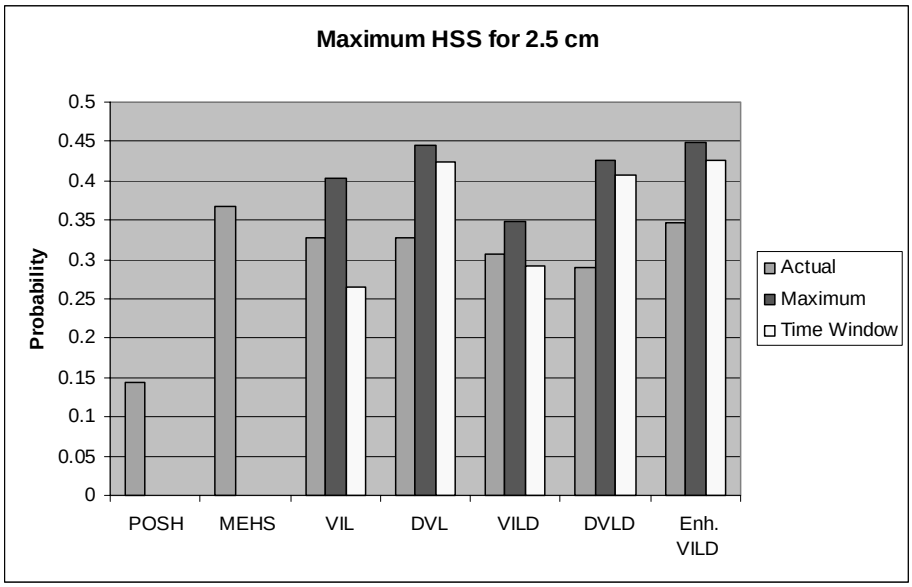
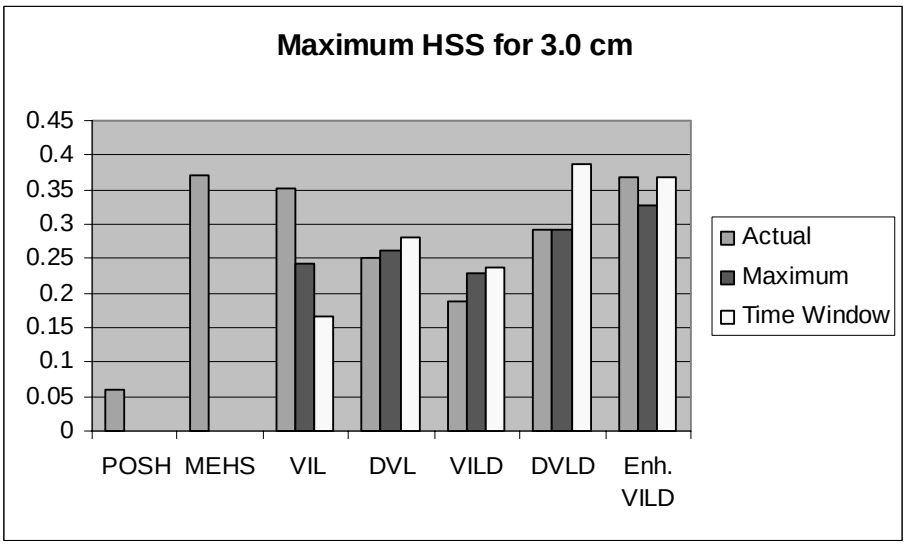
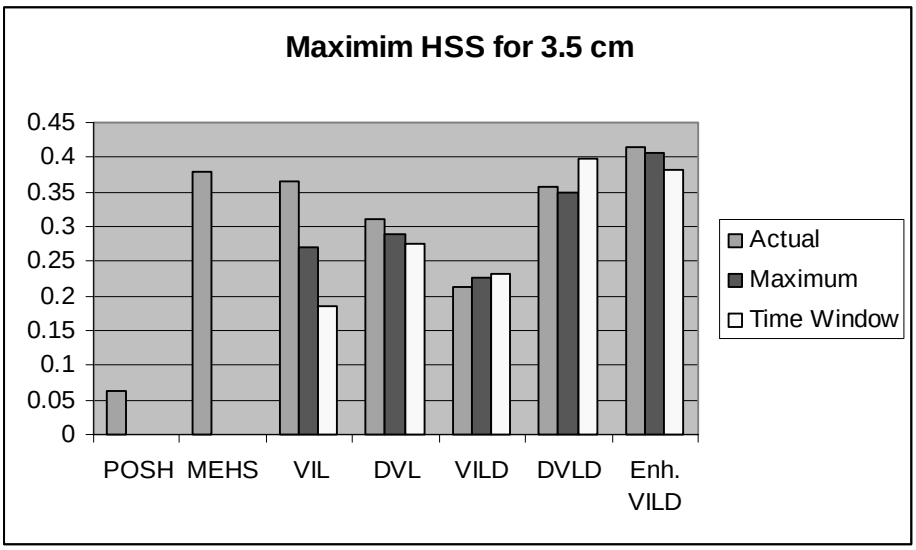


FIGURE 3. Correlation coefficients between the actual hail and the 17 hail diagnostic products.


Maximum HSS for 2.5 cm
Probability
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
POSH
MEHS
VIL
DVL
VILD
DVLD
Enh. VILD
Actual
Maximum
Time Window


Maximum HSS for 3.0 cm
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
POSH
MEHS
VIL
DVL
VILD
DVLD
Enh. VILD
Actual
Maximum
Time Window


Maximim HSS for 3.5 cm
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
POSH
MEHS
VIL
DVL
VILD
DVLD
Enh. VILD
Actual
Maximum
Time Window

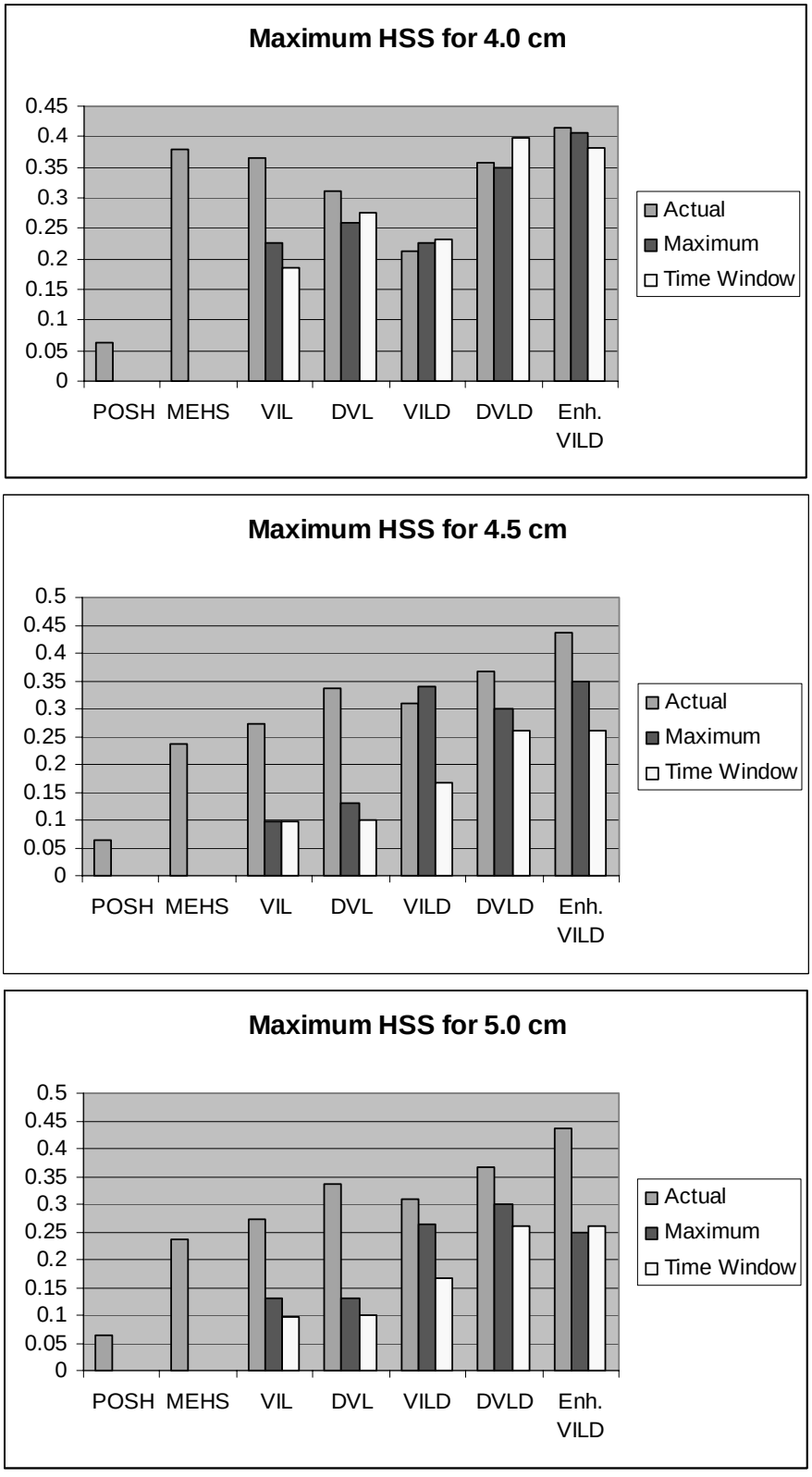


FIGURE 4. Maximum HSS for all 17 hail diagnostic products for all the thresholds. From top to bottom: 2.5, 3.0, 3.5, 4.0, 4.5, and 5.0 cm.

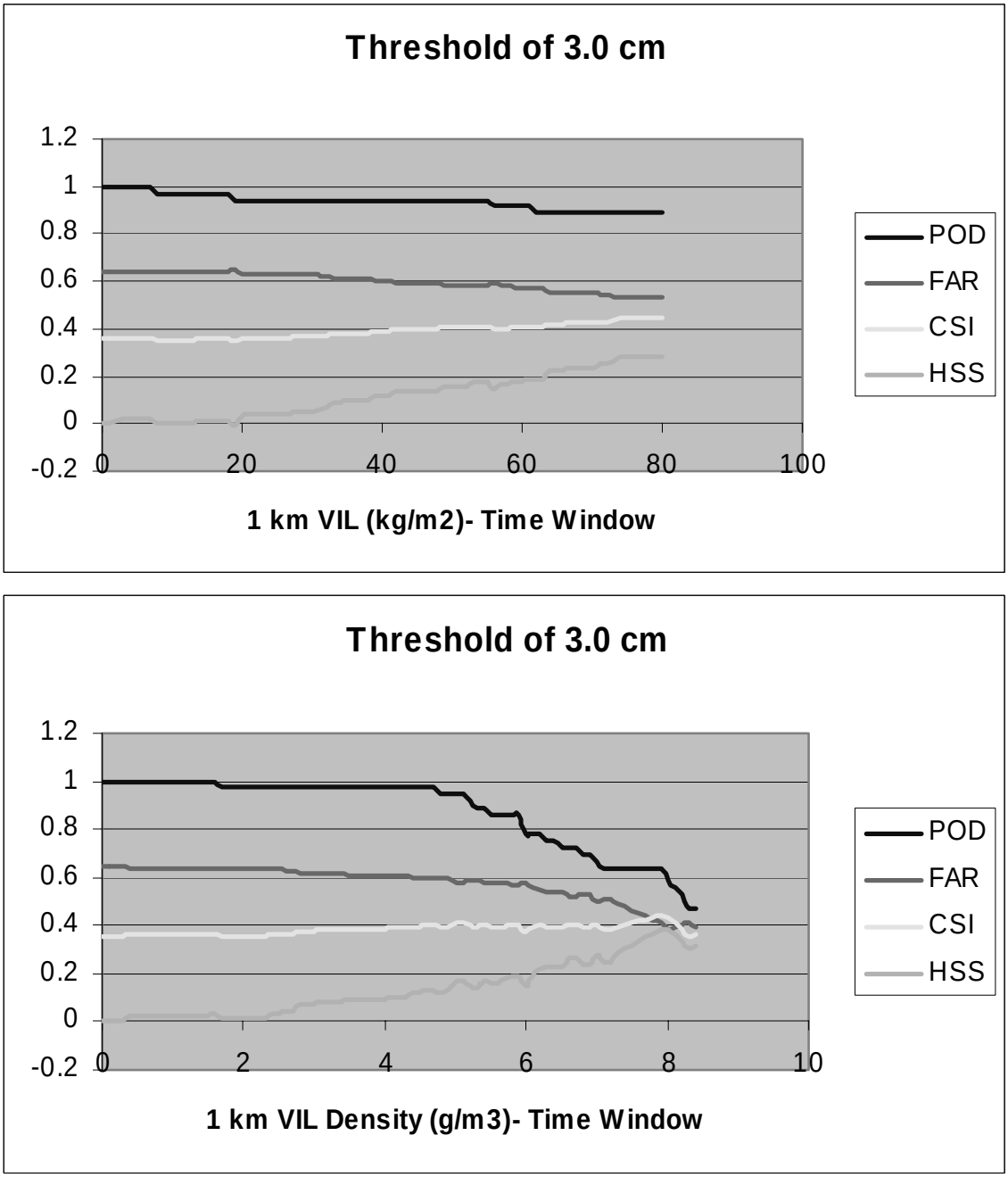


FIGURE 5. The top figure is 1 km VIL, and the bottom figure is the 1 km VIL Density. Both are showing the 3.0 cm threshold.

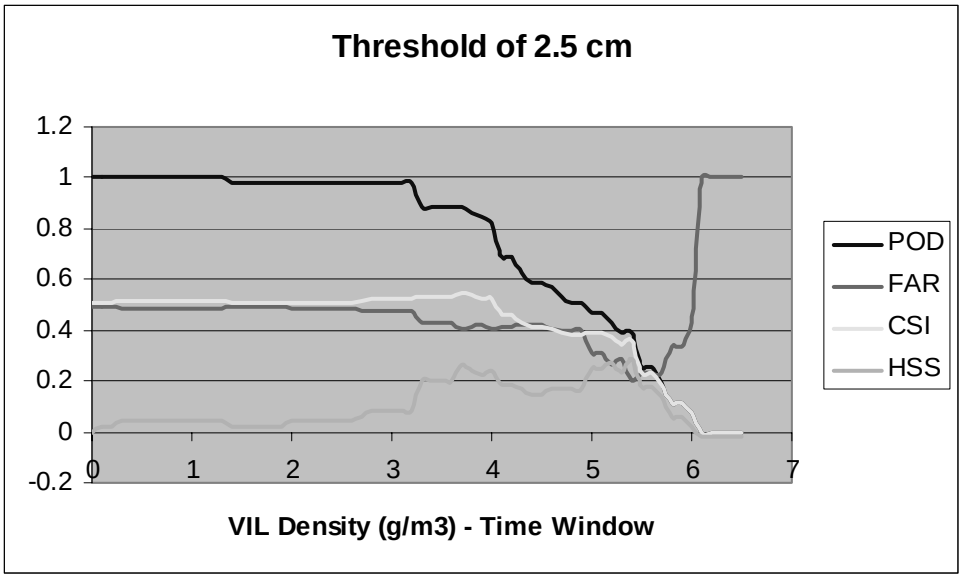


FIGURE 6. The 2.5 cm threshold for the maximum VIL Density in the time window.