MURRAY AND TRETTEL, INCORPORATED

November 1, 2011

ComEd
Lincoln Centre Two
Two Lincoln Centre
Oakbrook Terrace, Illinois 60181

Re: Detailed Report for Weather Event June 8th and June 9th, 2011

Introduction:

I, Thomas R. Piazza, Certified Consulting Meteorologist and President of Murray and Trettel, Inc. of Palatine, Illinois, have been asked by Commonwealth Edison Company ("ComEd"), to provide a written report on the Weather Pattern and associated Severe Weather Event that occurred in Northern Illinois on June 8th and June 9th, 2011.

In the process of formulating my conclusions and opinions expressed in this report, I examined the weather data reports, images and maps, documents and other information and reports listed in Appendix A.

Executive Summary:

The intent of this report is to describe in a meteorological context the weather events, and their severity that occurred across ComEd's territory in Northern Illinois on June 8-9, 2011.

The Spring of 2011 featured very few severe weather events across Northern Illinois through the end of May, while a great deal of news was being made with the tornado outbreaks across the southern tier of states. As the month of June started the weather pattern was shifting into a favorable one for severe weather across the Midwest and Southern Great Lakes, which included Northern Illinois. The first significant severe weather event across Illinois was on June 8th and 9th.

This thunderstorm event was comprised of several lines of severe thunderstorms that moved across ComEd's territory between 2000 hours, June 8th and 1000 hours, June 9th. These thunderstorms caused the following severe weather across ComEd's territory:

1. Damaging winds…numerous reports of 55-70 mph
2. Damaging Hail…1.00-1.75 inch diameter
3. Flash flooding…1.50-6.00 inches rain/Flash Flood Warnings issued for much of ComEd's territory
4. Intense lightning…over 35,000 strokes compared to the 10 year mean of 21,000 stokes for major thunderstorm events

5. Prolonged period of heavy thunderstorms

The first event was a bowed line of severe thunderstorms with damaging winds that moved across Southern Wisconsin between 2000 and 2300 hours on June 8th. The most severe part of this line remained in Wisconsin; however, a "gust front" developed south and southeast of this line of storms that brought damaging winds to sections of ComEd's territory, primarily north of Interstate I-90 ("I-90"), between 2000 and 2130 hours. Behind this gust front the initial line of storms brought pockets of severe weather as it crossed the territory between 2000 hours on June 8th and 0100 hours on June 9th. Following this there were three more lines of storms that moved across ComEd's territory between 0100 and 1000 hours on June 9th. These resulted in additional pockets of damaging winds, heavy rains, damaging hail and intense lightning.

North American Weather Circulation:

The intent of this summary is not to explain the cause(s) of what initiated the weather pattern and circulation that set up over North America and the Northern Hemisphere, but rather the effects this weather pattern had on the regional weather in the Midwest and the Great Lakes.

Two large-scale atmospheric circulation drivers were essentially neutral during June and July. The equatorial Pacific was in an ENSO-neutral state, which means the La Niña had officially ended even though atmospheric circulation anomalies still reflected some aspects of La Niña. The Pacific/North American (PNA) pattern was also neutral and thus not a significant player in the nation's weather this same period. However, two large-scale atmospheric circulation drivers were influential during June and July 2011. The first was the North Atlantic Oscillation (NAO) pattern, which was negative for most of the period. This was characterized by High Pressure over Greenland and Low pressure over the eastern part of Canada. A negative NAO this time of year is typically associated with warmer-than-normal temperatures and drier-than-normal conditions in the southern Plains and Southeast, cooler-than-normal weather in the Northwest and northern Plains, and wetter-than-normal conditions in the northern Plains and Midwest. The second atmospheric circulation index was the Arctic Oscillation (AO) pattern, which was slightly negative for most of the month of June and the first half of July, then near zero the latter half of July. A negative AO this time of year is typically associated with higher pressures over the North Pole regions. Therefore, with no other major circulation driver working to offset the NAO and the AO the weather pattern over the United States caused by the NAO and AO drivers persisted. In most years the weather patterns across North America will persist for 7 to 14 days and then shift. However, when individual macro-scale circulation drivers dominate with no other competition to offset or mitigate them from time to time, extended periods of much above or much below normal regional weather conditions persist across the United States, and for that matter, elsewhere in the Northern Hemisphere.

June-July 2011 Weather in the United States:

The above mentioned circulation drivers therefore, influenced the weather patterns over the United States. For most of the last two months, there was a persistent dome of high pressure that covered the eastern two thirds of the country, roughly from just east of the Rocky Mountains to the eastern seaboard. For much of the period, the center of high pressure had been located over East Central Texas, Southwestern Arkansas and Northeastern Louisiana, known as the Arklatex region. The effects of this resulted in near record to record heat over the Central and Southern Plains (such as Kansas, Oklahoma and Texas) where there had also been a major drought. This "heat ridge" pumped hot and often humid air northward into Northern Illinois. Meanwhile, to the north of this hot and dry boundary where conditions have been cooler and quiet moist, (such as North and South Dakota and Minnesota) rain was in abundance and in some cases even to excess. In between these two extremes, (Nebraska and Iowa) rainfall in most cases was close to normal.

At night, meteorological phenomena will often occur during the summer over the Plains called the "Low Level Jet." Although common, this jet may have been enhanced this year due to the excessive hot and dry conditions

described above over the Central and Southern Plains, and due to the persistent large scale circulation, it frequented the same locations. This jet, basically 5,000 feet above the surface, was caused by the differential cooling of the western portions of the plains compared to that of the east. Thus the low level jet was strongest at night and weakened in the morning as heating once again takes place. (On the nose of this low level jet, air in the atmosphere is pushed upward and is vital for the generation of thunderstorms. Most often, thunderstorms will form in a clustered shape, known as a mesoscale convective complex (mcc) or system (mcs) depending on size.These convective systems are subsequently carried by the mid and upper level winds which flow between the dome of high pressure over the central and southern states and the low pressure system in Canada. On many days this flow resembles arc across the Northern US, which is referred to the "ring of fire".)

Event June 8, and June 9, 2011:

Background and Supporting Information

Radar images are from the National Weather Service Doppler Radar Sites in Davenport, IA ("KDVN") and Romeoville, IL ("KLOT").

All wind speed reports that are indicated with a +, e.g., 70+ mph, are estimated wind speeds made by this author that are based upon the measured speeds with associated damage descriptions for that particular event, and the guidelines outlined in, A Recommendation for an Enhanced Fujita Scale.

Lightning count information shown on the radar images represent the total number of lightning strokes in the previous fifteen (15) minute timeframe, unless otherwise noted. E.g., on the image labeled "approximately 2000 hours", the lightning count is the total number of strokes from 1945 to 1959 hours inclusive.

The outage and severe weather reports plotted on the radar images follow the same guideline as the lightning counts noted in the above paragraph.

All times are Central Daylight Time ("CDT") unless otherwise noted.

Meteorological Situation

The upper air on June 8, 2011 at 1200 hours featured a deep, unseasonably cold upper level low pressure system over Hudson Bay in Canada with a trailing short wave trough extending into the Dakotas and westward into a low pressure system over the Northern Rockies. There was a second shortwave trough that was moving northeastward out of the Southern Rockies. In addition, there was a large high pressure system over the Southeastern States. The combination of these systems allowed a strong southwesterly wind field, known as the low level jet, to set up from Texas northeastward into the Great Lakes. This allowed hot air to combine with very moist air from the Gulf of Mexico to over spread much of the Midwest and Great Lakes. This also resulted in a huge temperature differential for June at all levels of the atmosphere, e.g. at 5000 feet it was only 28 degrees Fahrenheit just the other side of Lake Superior and 77 degrees Fahrenheit in Southern Illinois.

The surface weather pattern on June 8, 2011 at 1200 hours featured a cool front that extended from a low pressure system over the Upper Peninsula of Michigan southwestward through Southwest Wisconsin, Central Iowa, into a low pressure system in Southern Kansas. A large unseasonable cool high pressure system was located in Southern Manitoba and Saskatchewan Canada. Hot and humid air extended south of this front to the Gulf Coast and unseasonably cool air was north of the front. Temperatures ranged from the 40s north of Lake Superior to the upper 90s in Texas.
This weather situation created a very unstable atmosphere in front of the slowly moving cool front and provided the necessary conditions for severe thunderstorm occurrence.

Chronology of events

At around 1600 hours on June 8th, thunderstorms developed from Southwest Wisconsin southwestward into Iowa in front of the advancing cool front. This line of storms developed into a bowed line of storms in Southern Wisconsin trailing southwestward into Northern Illinois and Iowa. Even though the worst of the damaging winds occurred across Southern Wisconsin, a "gust front" developed in advance of this line of storms and brought damaging winds well in advance of the thunderstorms to the northern sections of ComEd's territory in the Rockford, Crystal Lake and Libertyville regions. The following images, Images 1-8, show this event extremely well on the radar.

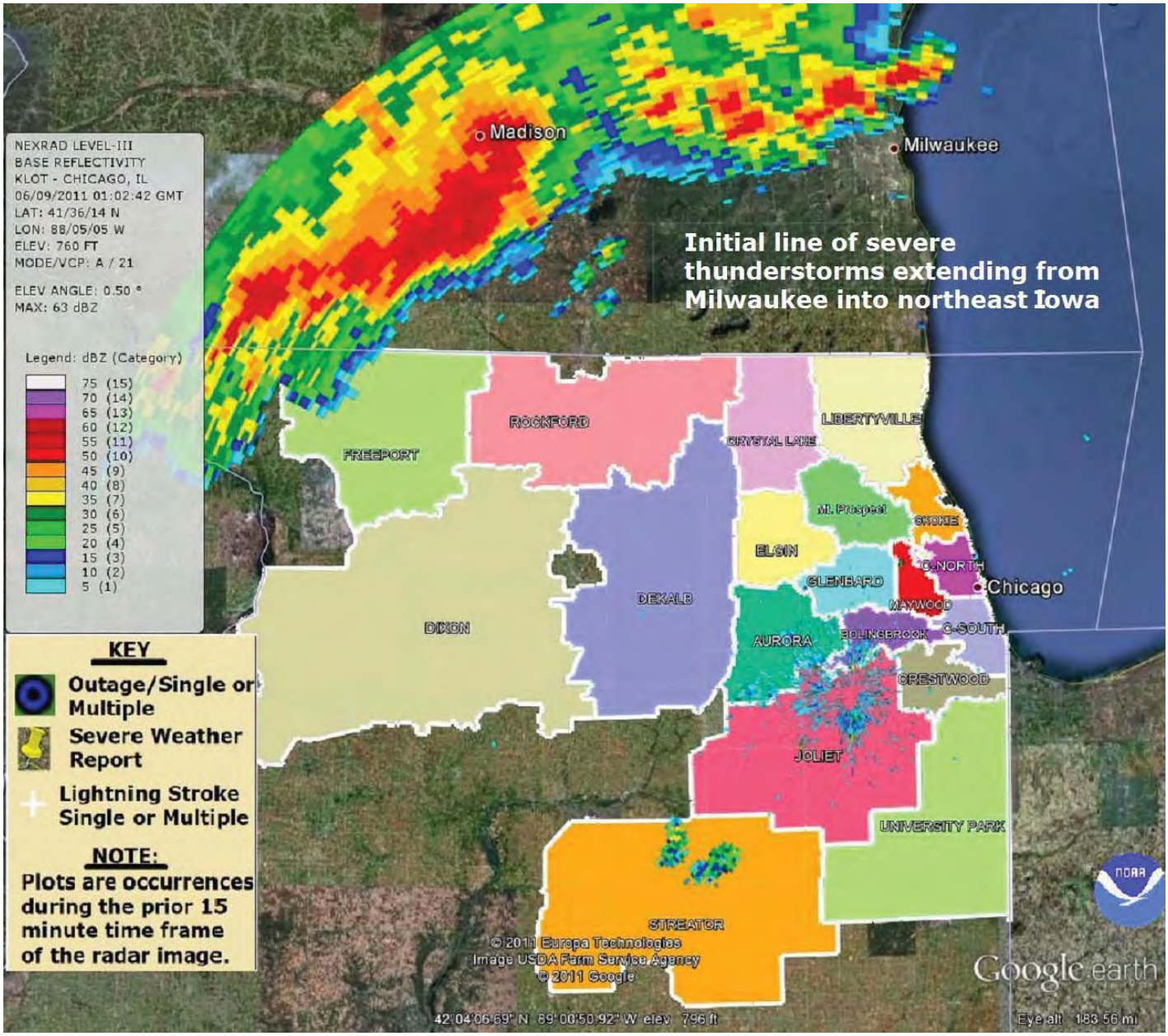

Image 1 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2000 hours

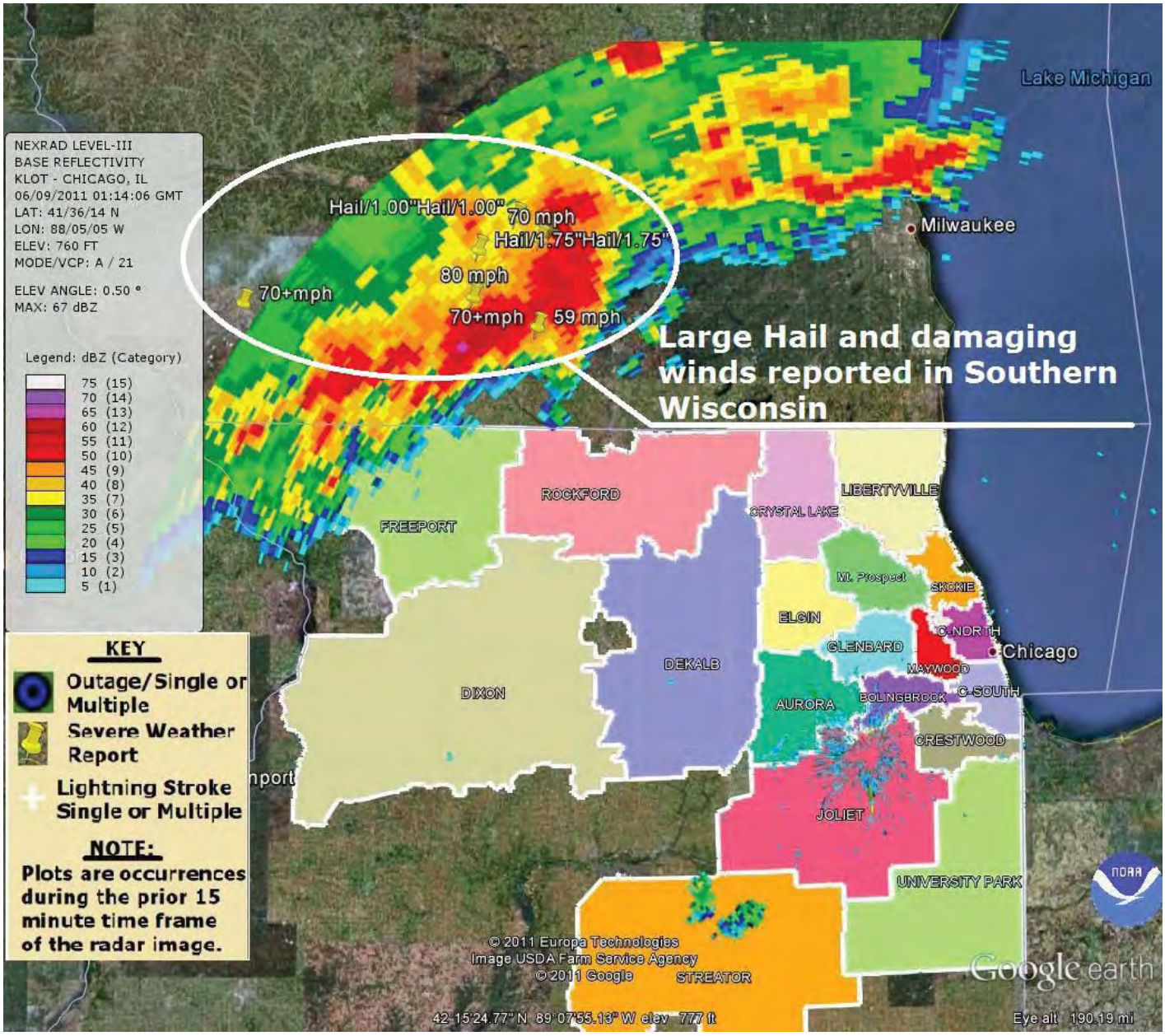

Image 2 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2015 hours

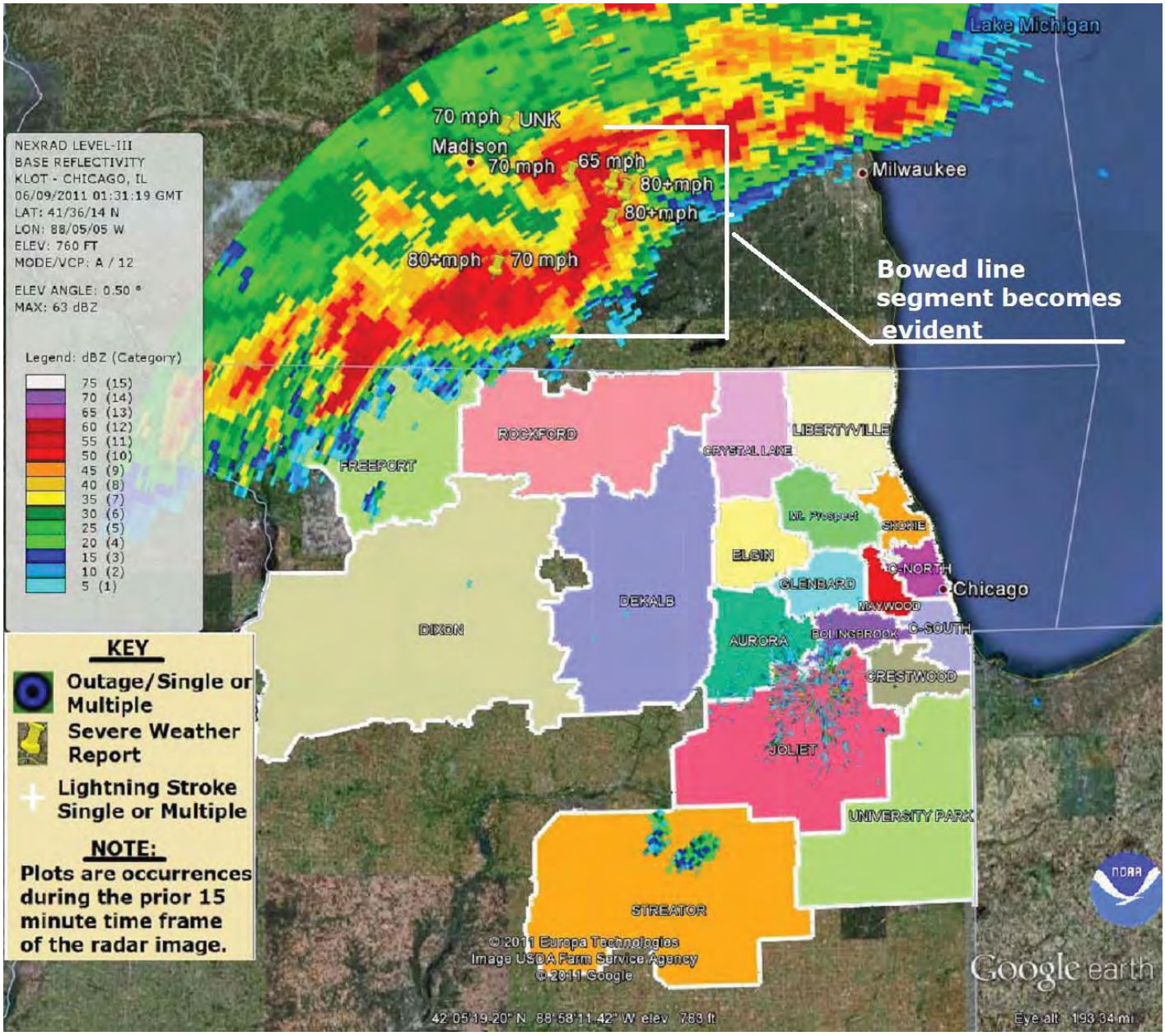

Image 3 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2030 hours

Total ComEd Customers Who Lost Power (Cumulative)	Customers Restored (Cumulative)	Customers Still Without Power
0	0	0

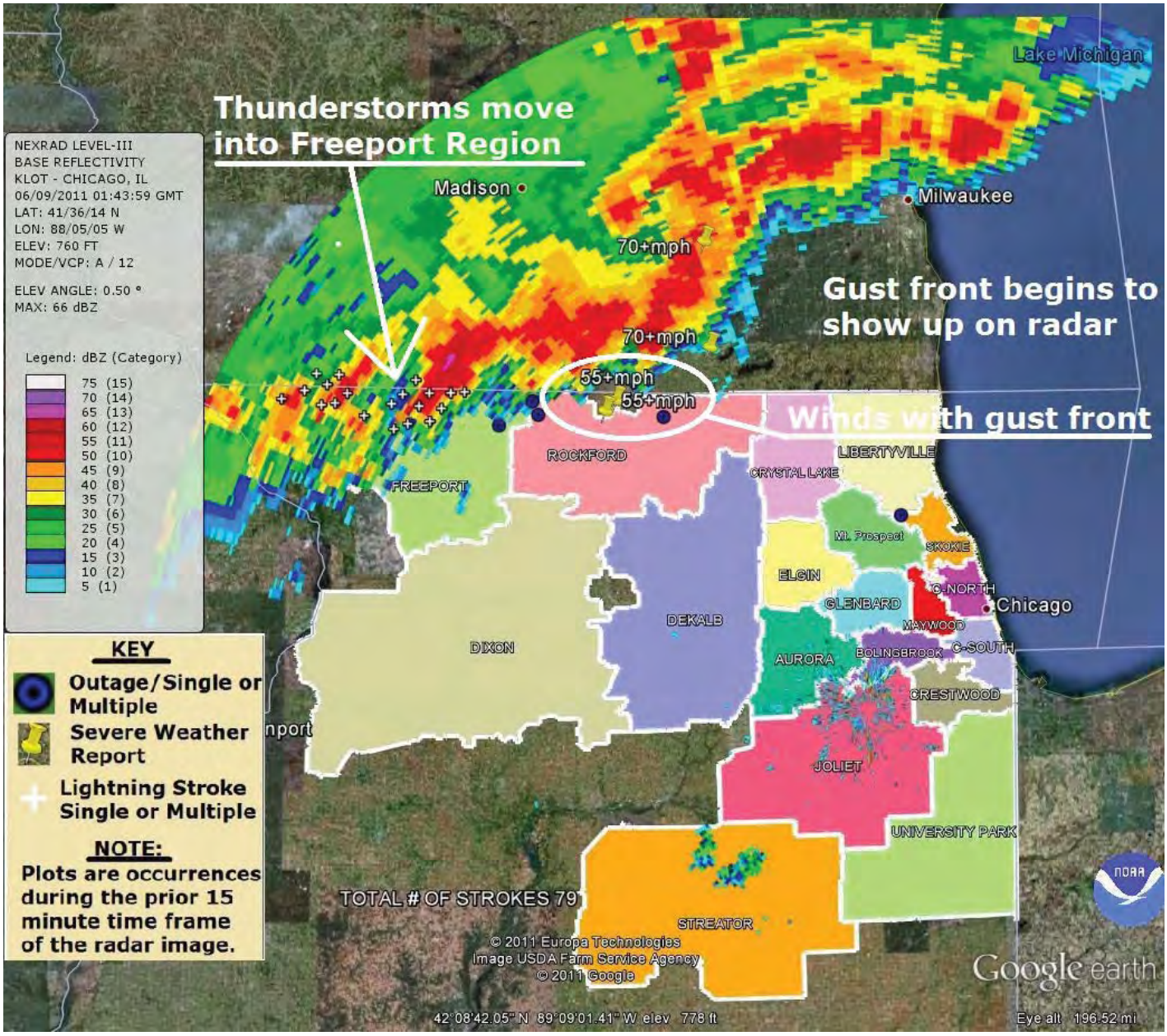

Image 4 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2045 hours

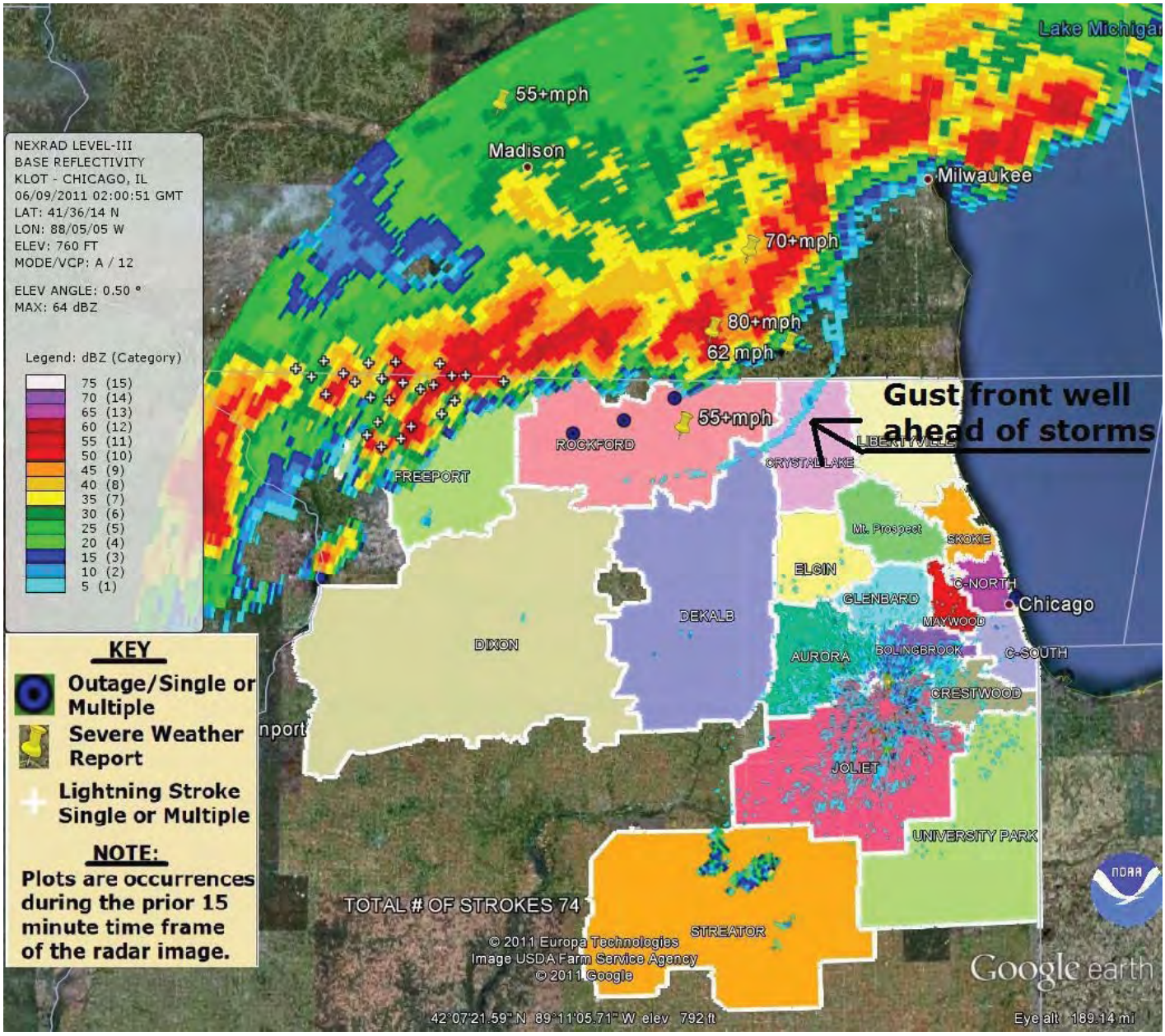

Image 5 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2100 hours

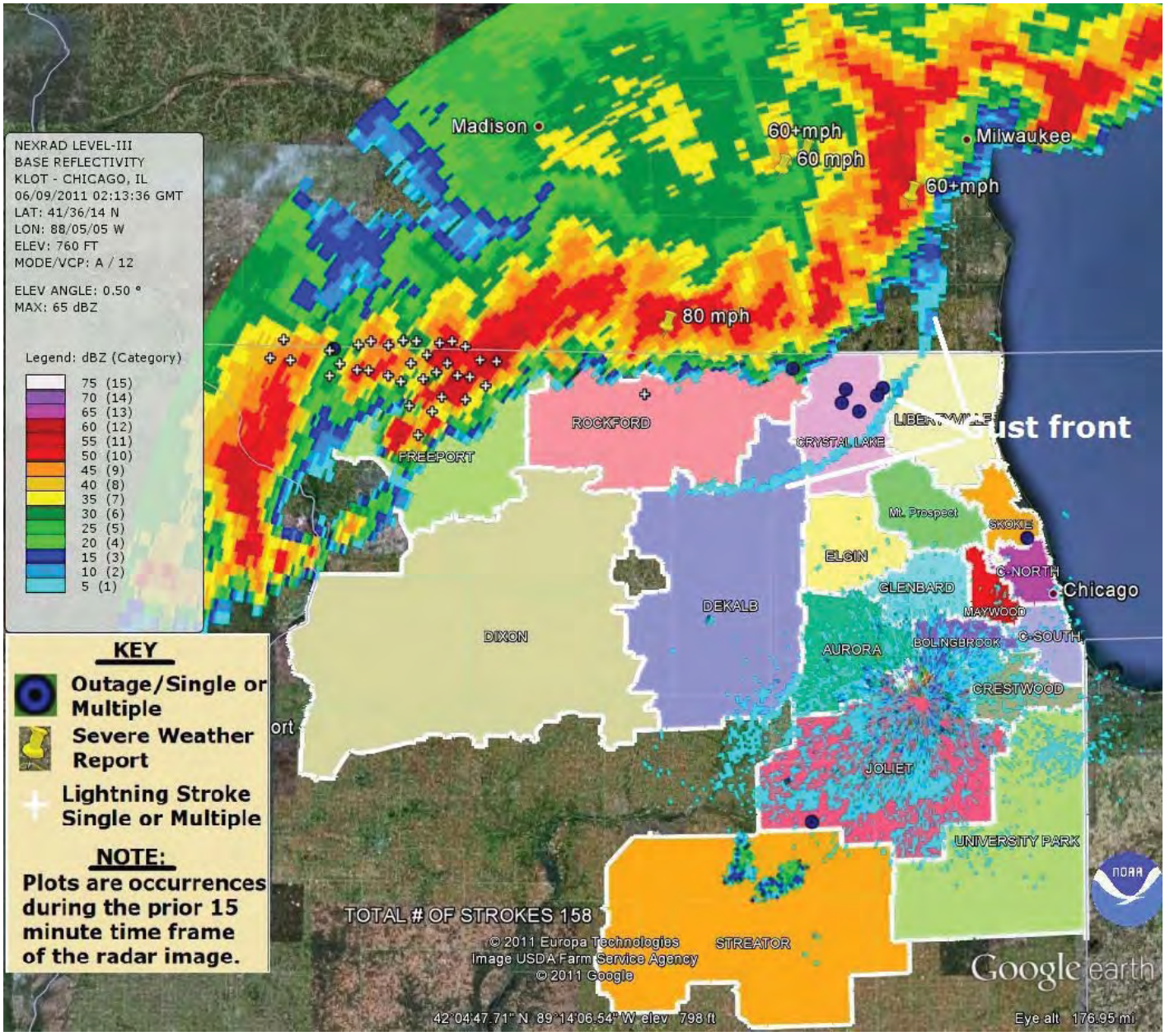

Image 6 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2115 hours

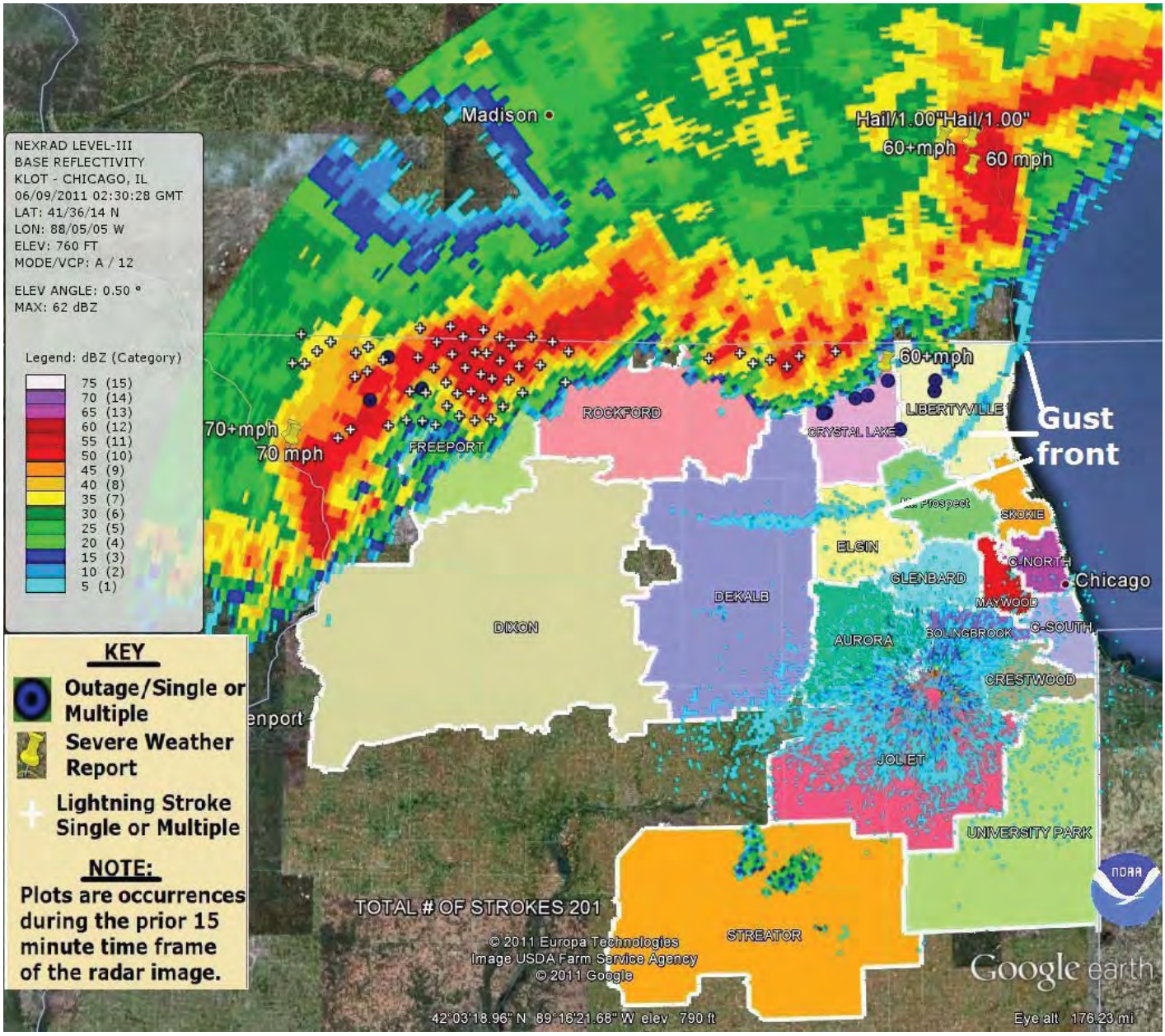

Image 7 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2130 hours

Total ComEd Customers Who Lost Power (Cumulative)	Customers Restored (Cumulative)	Customers Still Without Power
7,605	1,168	6,437

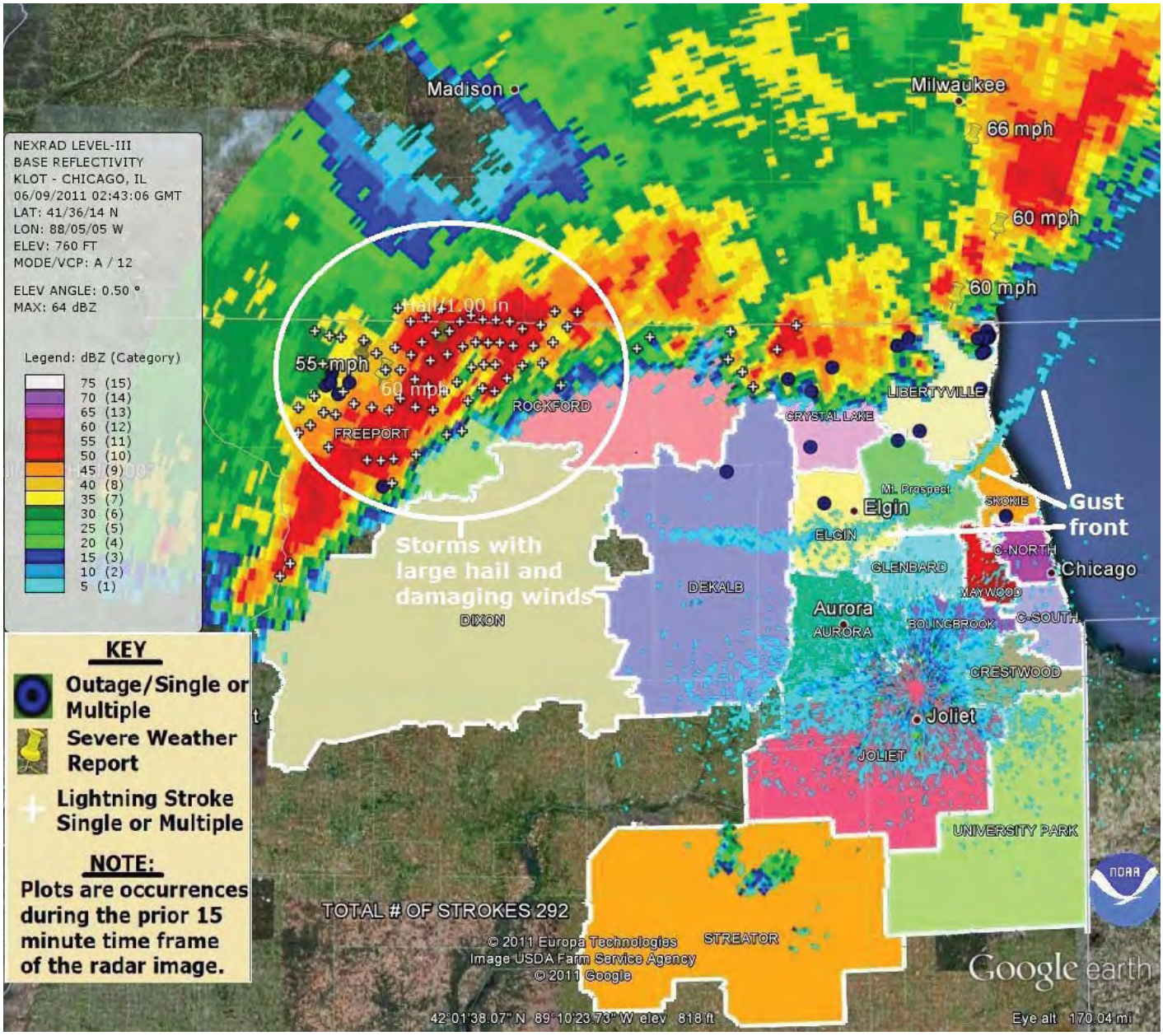

Image 8 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2145 hours

Following this gust front the main line of thunderstorms advanced southeastward with individual cells becoming severe with some damaging microbursts and large hail. There were a moderate number of cloud to ground lightning strokes. This initial line of thunderstorms moved through Northern Illinois from 2000 hours June 8th through 0100 hours June 9th, in advance of, and along the cool front. The most severe part of these storms affected areas primarily north of Interstate I-88 ("I-88") northward to the Wisconsin state line. Wide spread wind gusts of 40 to 50 mph occurred with some gusts 50 to 70 mph. This line of storms produced over 5300 lightning strokes. Images 9-17 show this line of storms moving through the region.

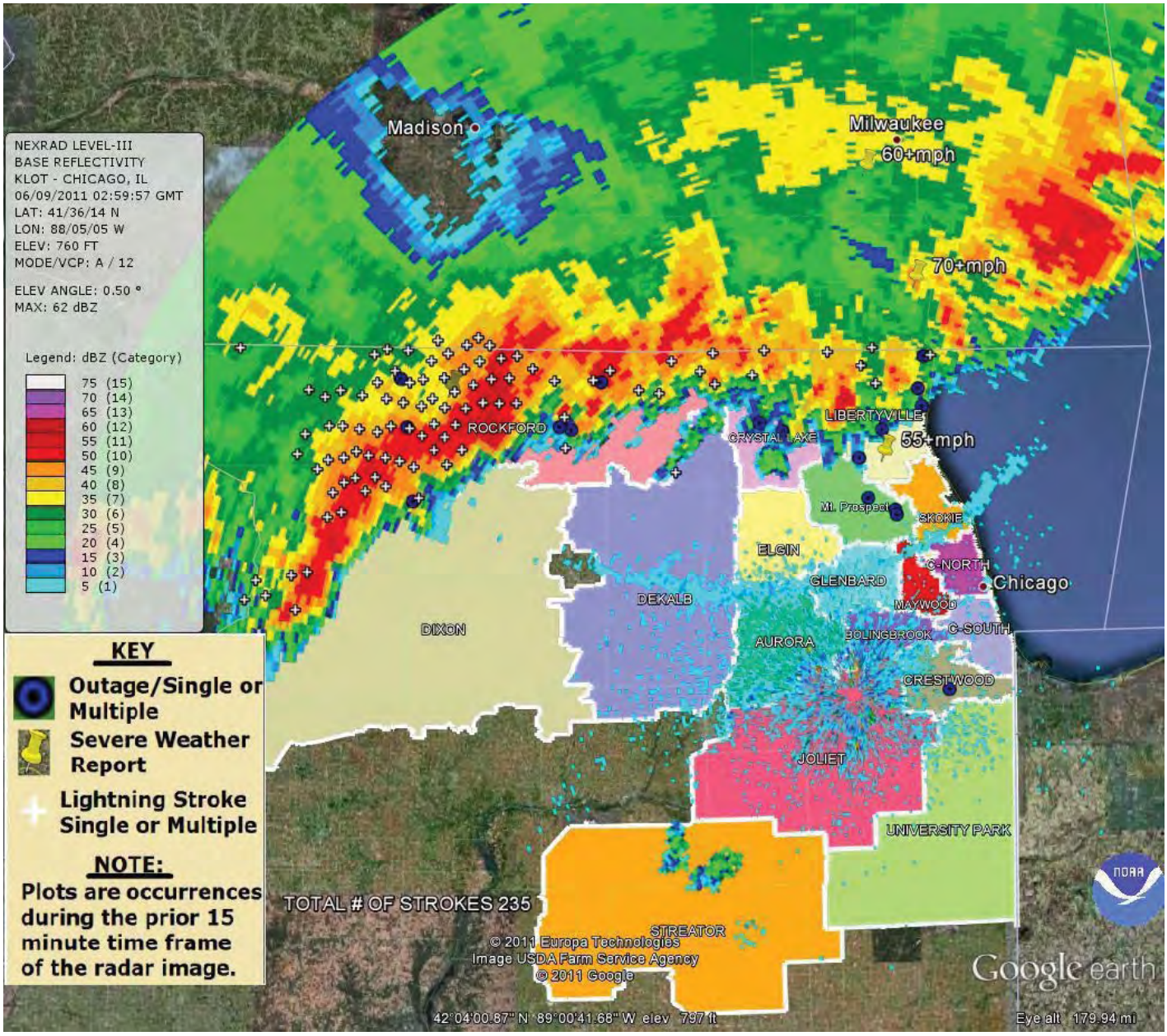

Image 9 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2200 hours

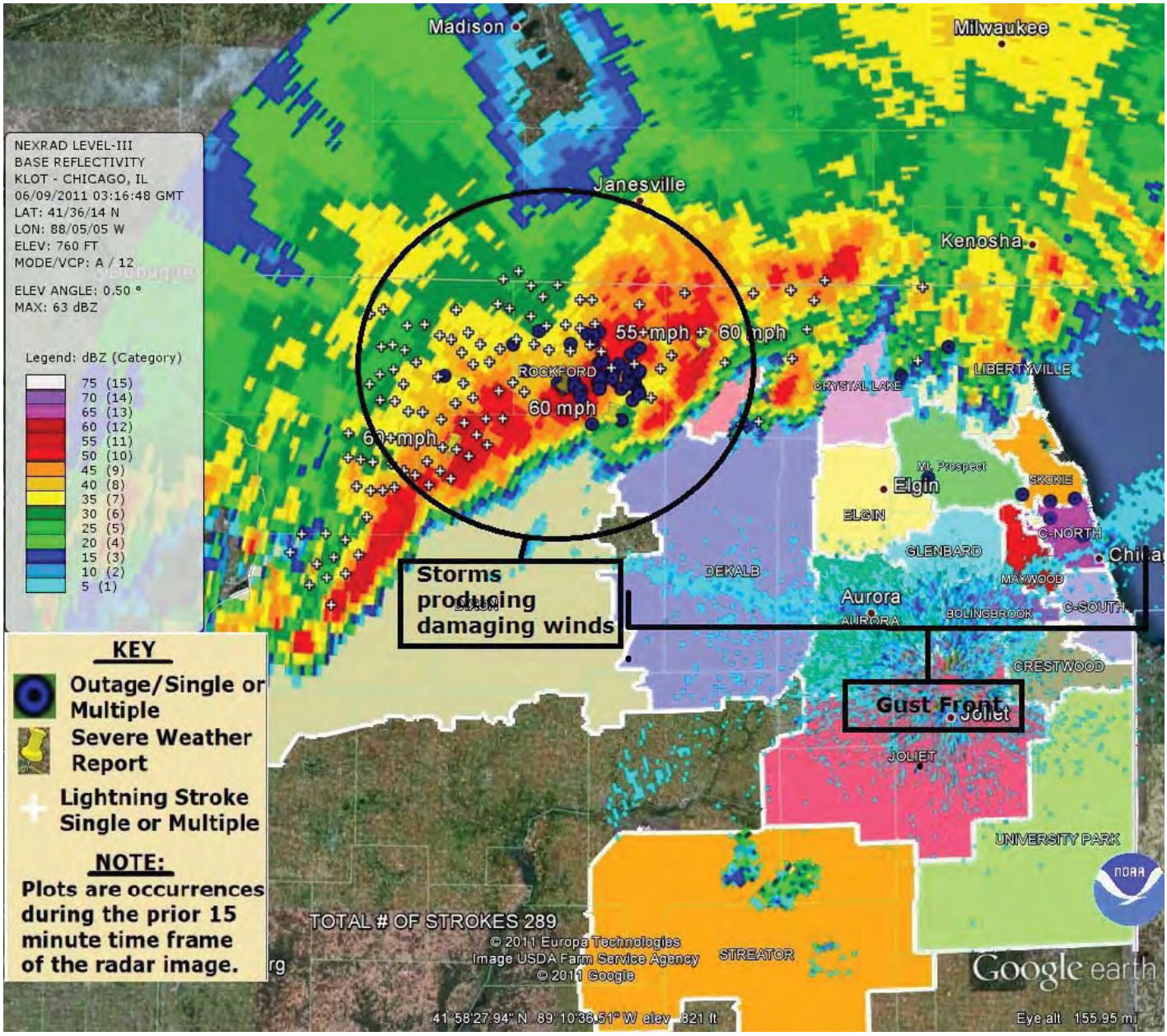

Image 10 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2215 hours

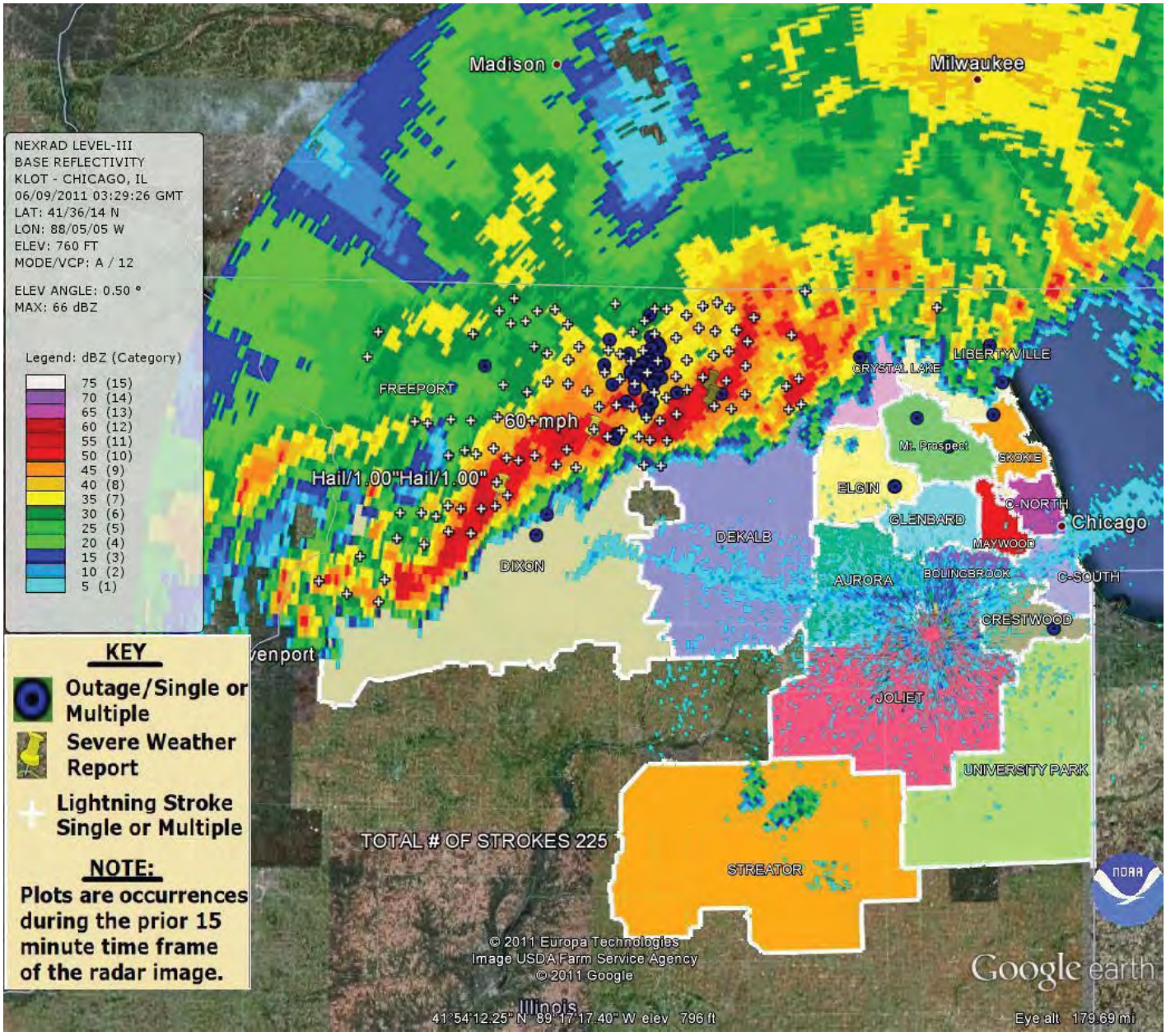

Image 11 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2230 hours

Total ComEd Customers Who Lost Power (Cumulative)	Customers Restored (Cumulative)	Customers Still Without Power
40,407	8,487	31,920

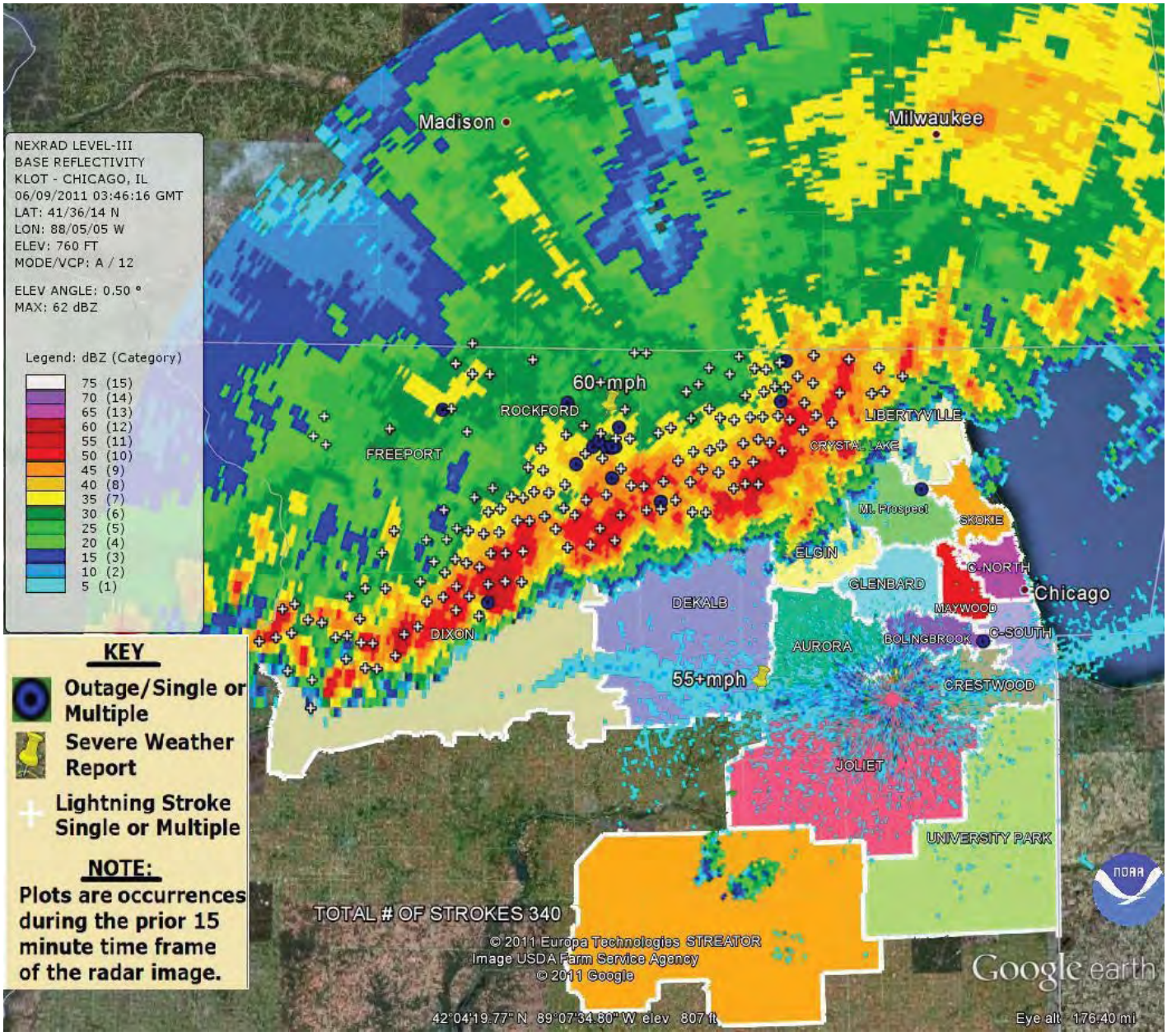

Image 12 KLOT NEXRAD Base Reflectivity on June 8, 2011 at approximately 2245 hours