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KA 124-90-01

July 15, 1991

Mr. Tom Rogers
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: IMC New Wales
Sulfuric Acid Plant
Production Rate Increase
Response to U.S. Department
of Interior Correspondence

Dear Mr. Rogers:

On July 9, 1991, we received by fax transmittal from your office a copy of a letter (undated) to Clair Fancy from Mr. Wilbur Ladd of the U.S. Department of Interior, Fish and Wildlife Service. The letter addressed the potential impact of sulfur dioxide emissions from sulfuric acid plants at the IMC New Wales (IMC) phosphate fertilizer complex in Polk County, Florida on the Chassahowitzka Wilderness Area. The sulfur dioxide emissions that were addressed in the letter are the PSD increment-consuming emissions from the five sulfuric acid plants operated by IMC; including increases that were addressed in an air construction permit application prepared by Koogler & Associates and recently submitted by IMC to your office. The Chassahowitzka Wilderness Area is a Class I PSD area approximately 104 kilometers northwest of IMC.

In the U.S. Department of Interior letter, concern was expressed about the predicted impact of sulfuric dioxide emissions from IMC under seven sets of meteorological conditions occuring in 1986 Tampa meteorological data. The specific conditions were represented as Julian Days 36, 151, 176, 205, 215, 344 and 353. Using the meteorology from these days, the ISC-ST model predicts that either the impact of all PSD consuming sources (including IMC) will exceed 5.0 micrograms per cubic meter for the 24-hour period or the impact of IMC emissions will be of concern (but not significant).

To further evaluate the impact of sulfur dioxide emissions from IMC under the seven sets of meteorological conditions, we looked into the availability of the Mesopuff II Air Quality Model. We found that the model is not yet available through the EPA Modeling Bulletin Board. As

an alternative, therefore, we plotted wind vectors for the seven sets of data. This vector approach is similar to the concept used in the Mesopuff II model, except for the fact that the model calculates pollutant concentrations and we did not.

In the attached figures, we have shown wind vectors that would represent plume travel during the first hour, the first two hours, the first three hours...the first 23 hours and all 24 hours for each of the seven sets of meteorological conditions for which the U.S. Department of Interior expressed concern. If one were to draw a line surrounding each set of 24 vectors, the envelopes would encompass all areas that would have been impacted by sulfur dioxide emissions from IMC under the seven sets of meteorological conditions. If the Mesopuff II model were used, the model would have, in addition, calculated the sulfur dioxide concentrations at selected receptor points within the envelopes.

From the attached figures, it can be seen that for the seven selected sets of meteorological conditions, emissions from IMC will get no closer than approximately 55 kilometers to Chassahowitzka. With one set of meteorological conditions (Julian Day 176, 1986), the plume trajectory remains within approximately 10 kilometers of IMC (90+ kilometers from Chassahowitzka) during the entire 24-hour period.

The analysis presented herein was prepared in direct response to the Department of Interior and in the absence of the Mesopuff II model. We recognize that other sets of meteorological conditions (for calendar years 1982 - 1985) could also present concerns. In these cases, we will be more than happy to conduct additional analyses to evaluate the trajectories of emissions from IMC.

As the attached analyses are based on the concept used by the Mesopuff II model and considering the fact that the Mesopuff II model is not presently available, I hope this information will provide your agency, EPA and the Department of Interior with assurance that emissions from IMC will not add to the degradation of air quality in the Chassahowitzka Wilderness Area. IMC is anxious to conclude the permitting for the requested increases in sulfuric acid production and is willing to cooperate in whatever way possible to reach a reasonable resolution to the concerns of the Department of Interior.

If there are any questions or comments regarding this information, please do not hesitate to contact me.

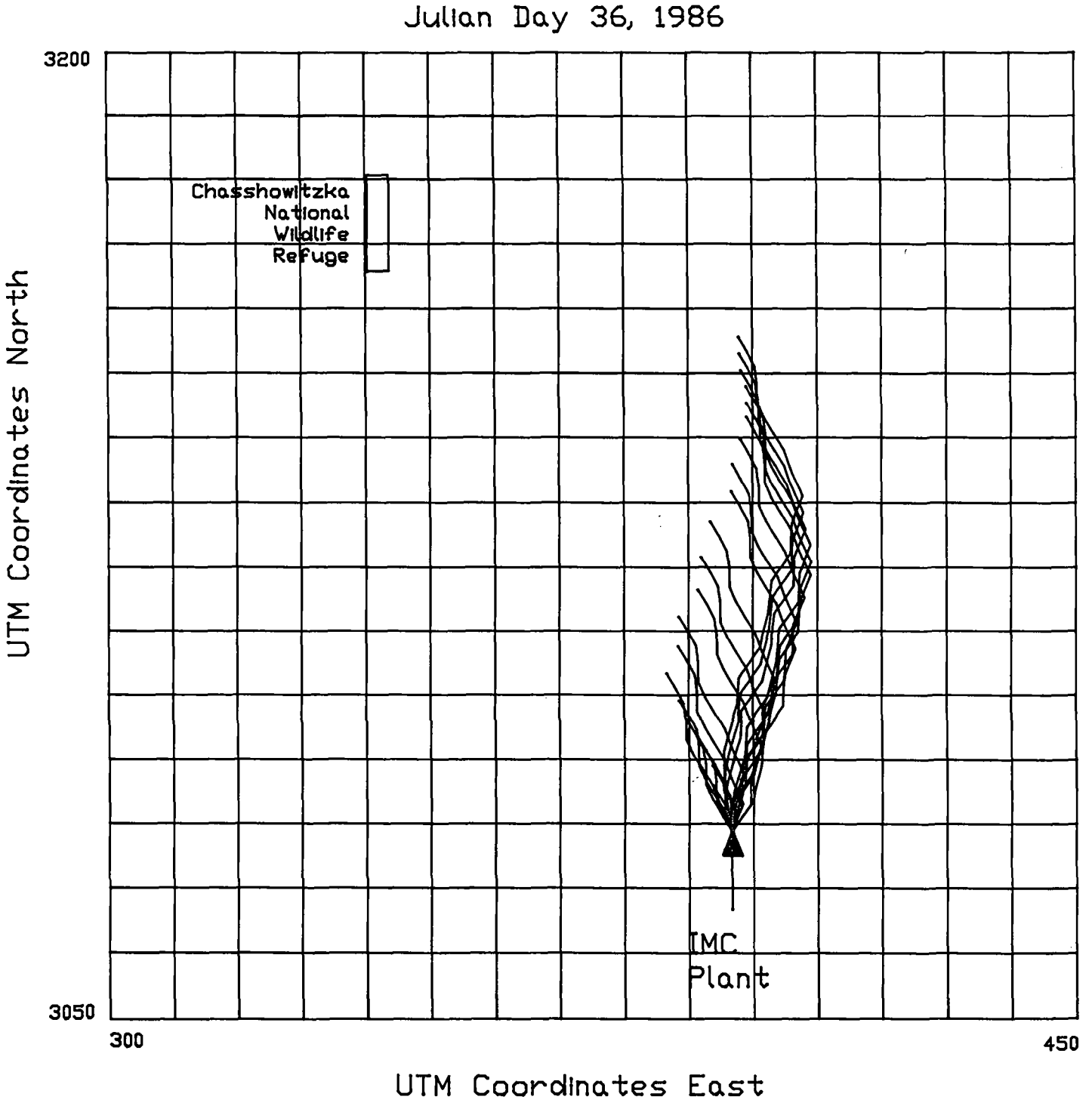
Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.

JBK:mab

cc: Mr. Joe Baretincic, IMC


Julian Day 36, 1986
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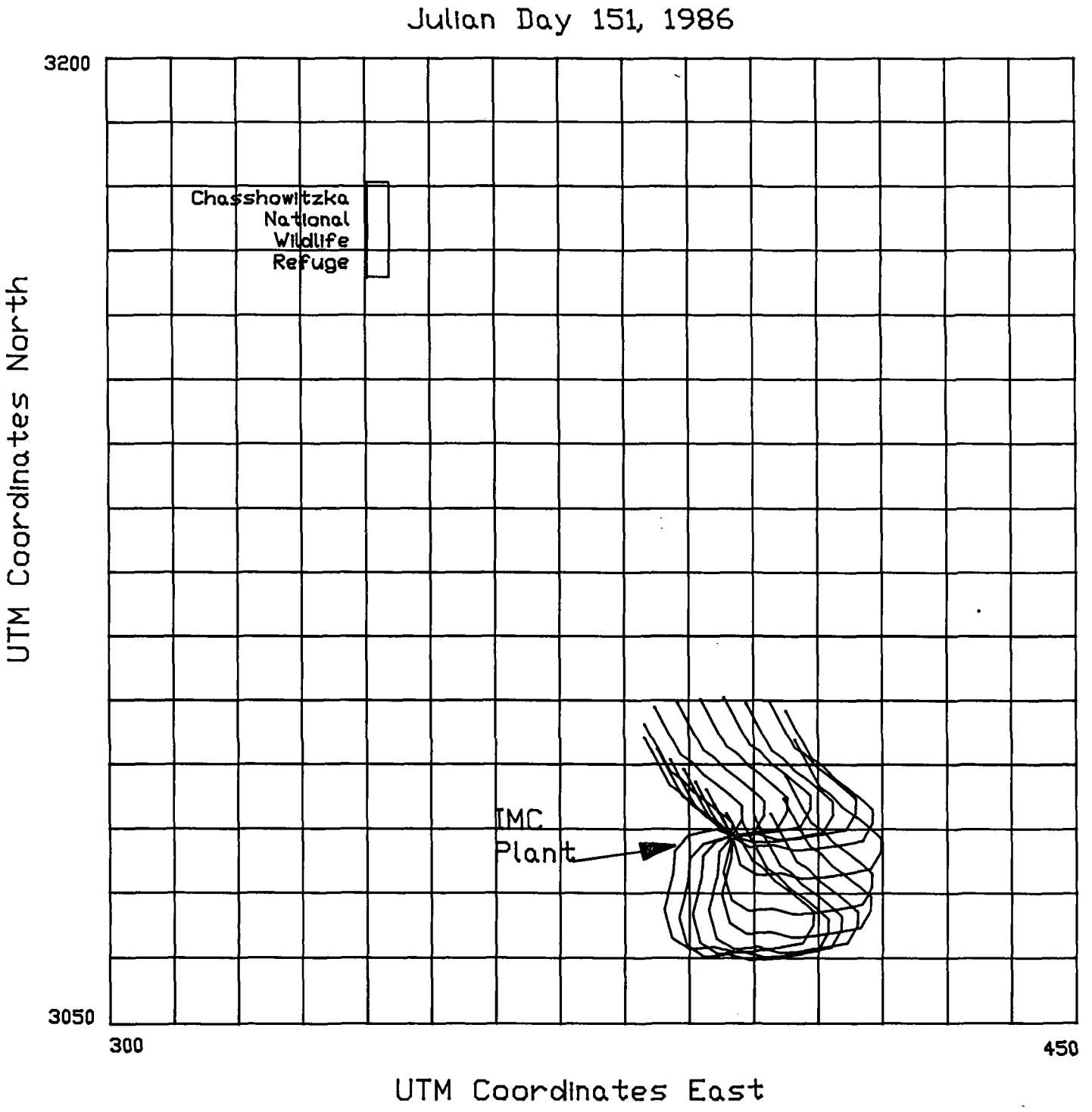
3050
300
450
UTM Coordinates North
UTM Coordinates East
Chasshowitzka
National
Wildlife
Refuge
TMC
Plant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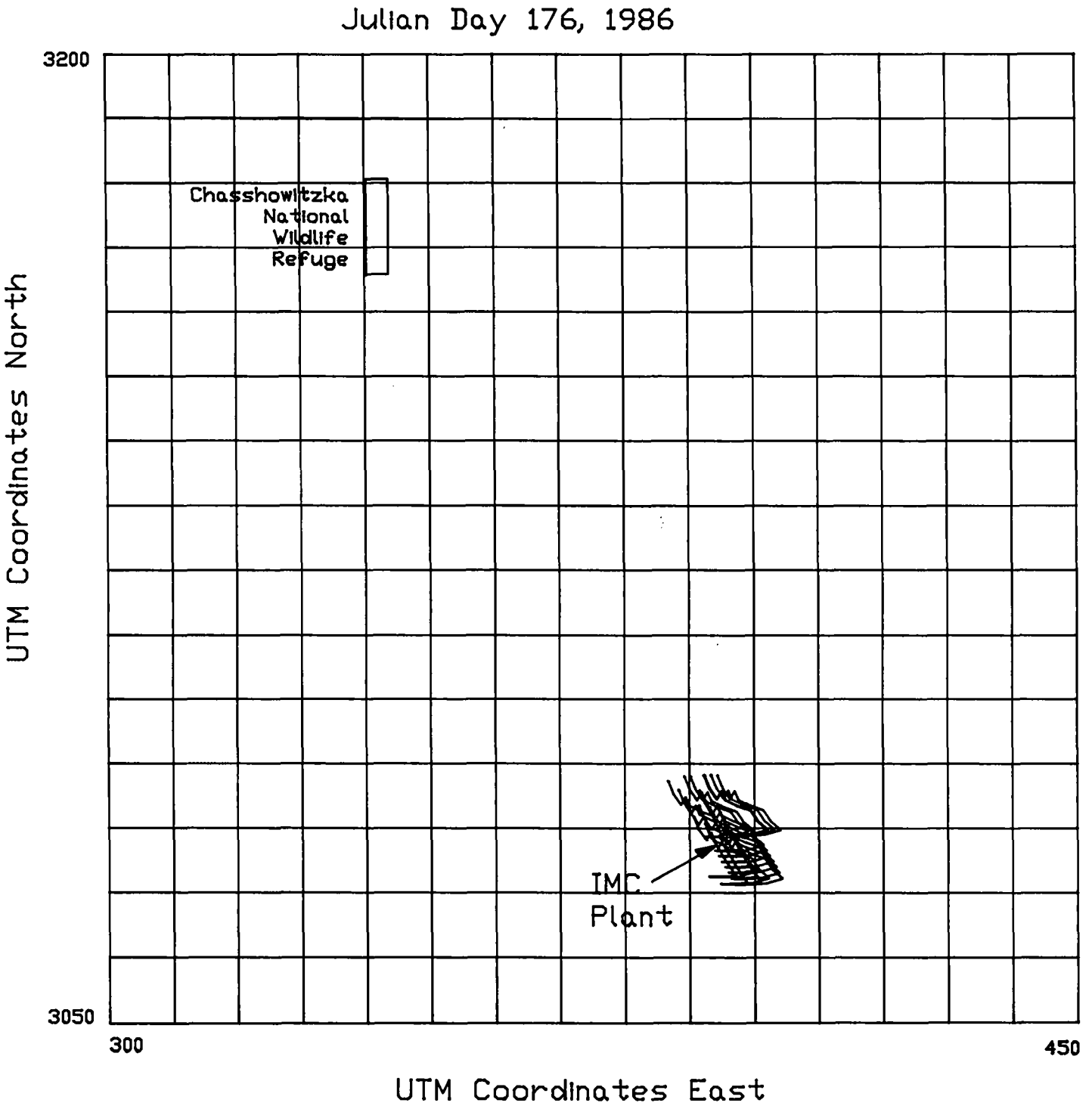
3200
3050
300
450
UTM Coordinates North
UTM Coordinates East
Chasshowitzka
National
Wildlife
Refuge
IMC
Plant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300
450
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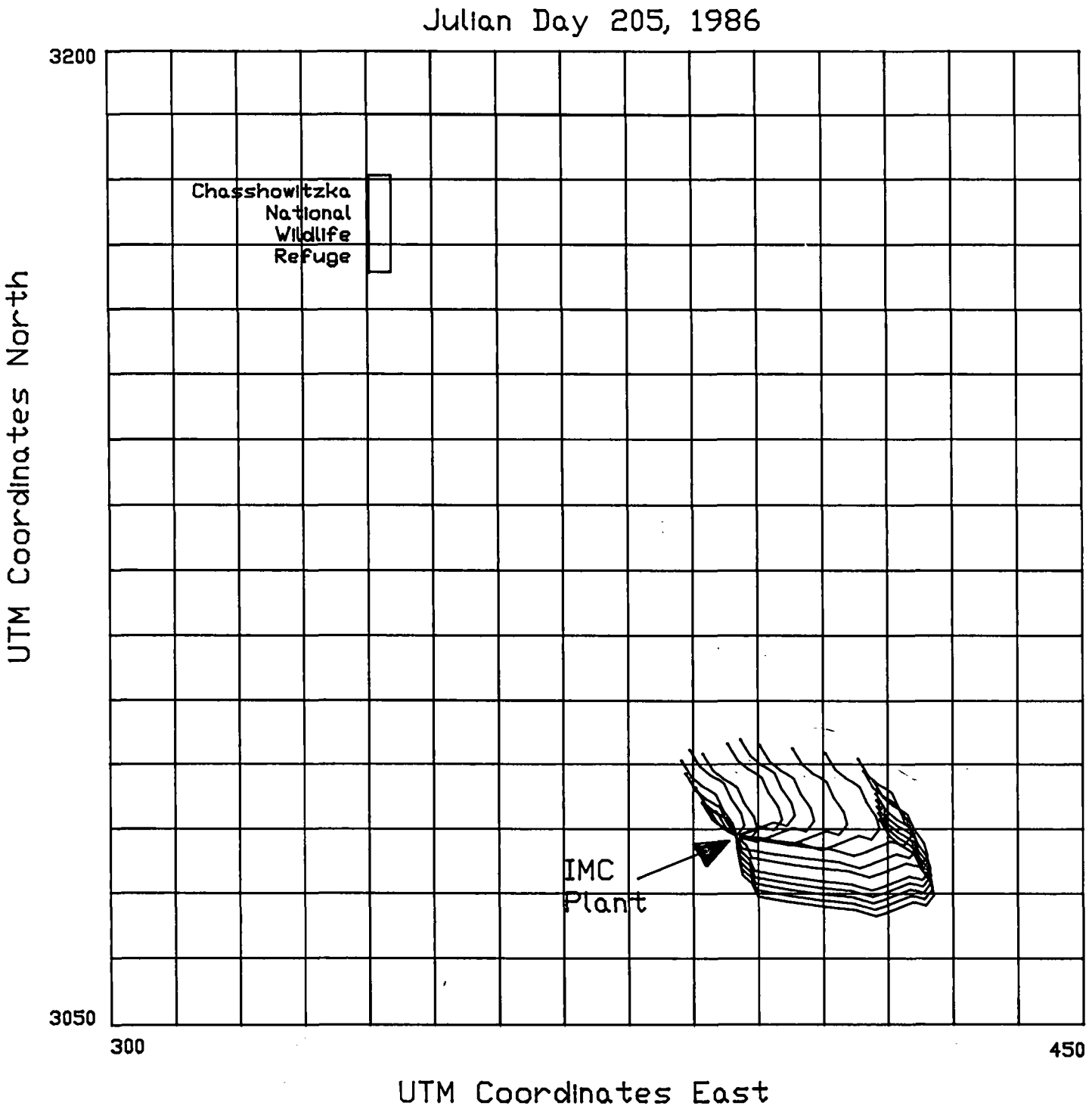
Chasshowitzka
National
Wildlife
Refuge
IMC
Plant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3200
3050
300
450
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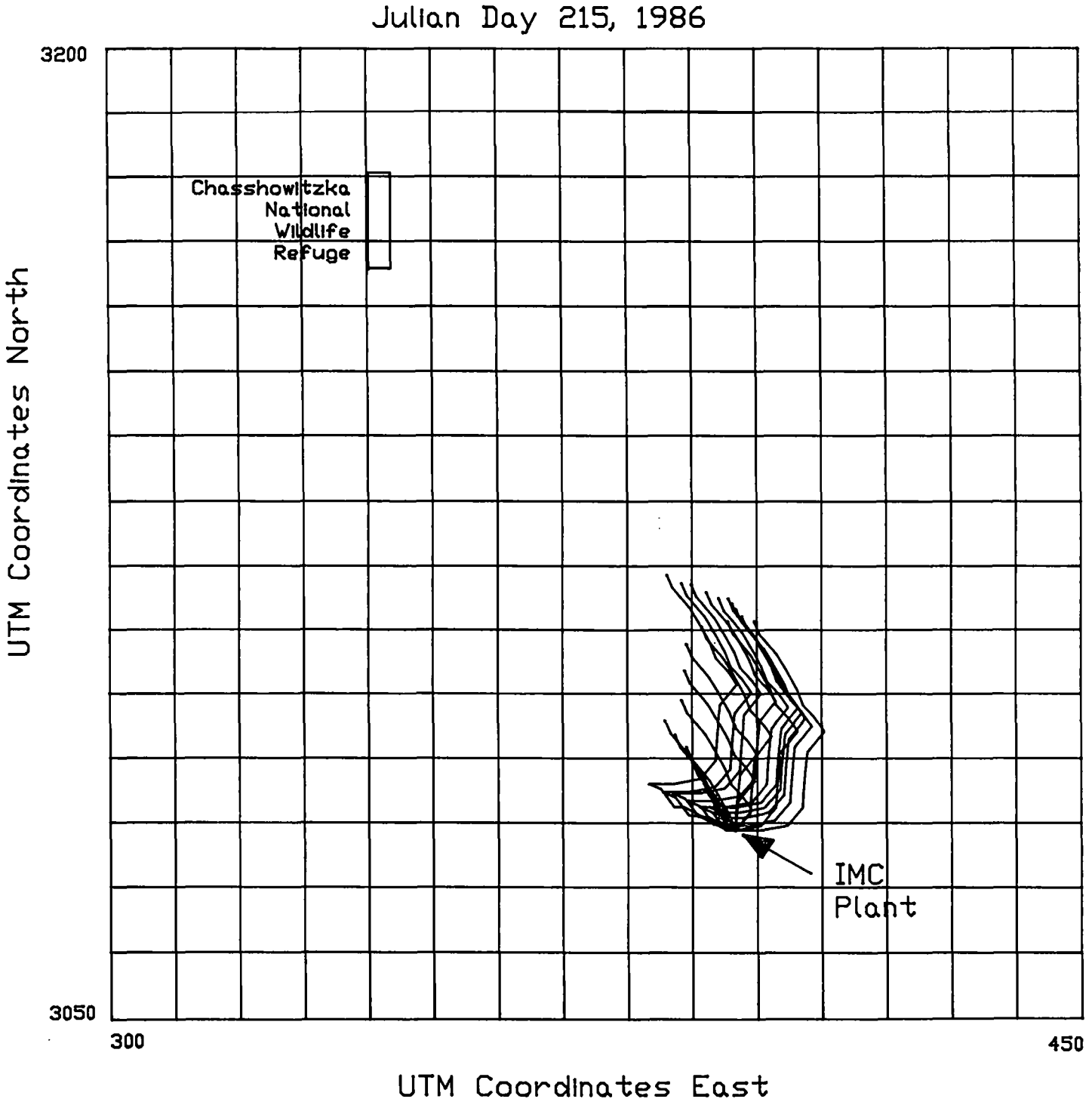
UTM Coordinates East
Chasshowitzka
National
Wildlife
Refuge
IMC
Plant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3200
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450
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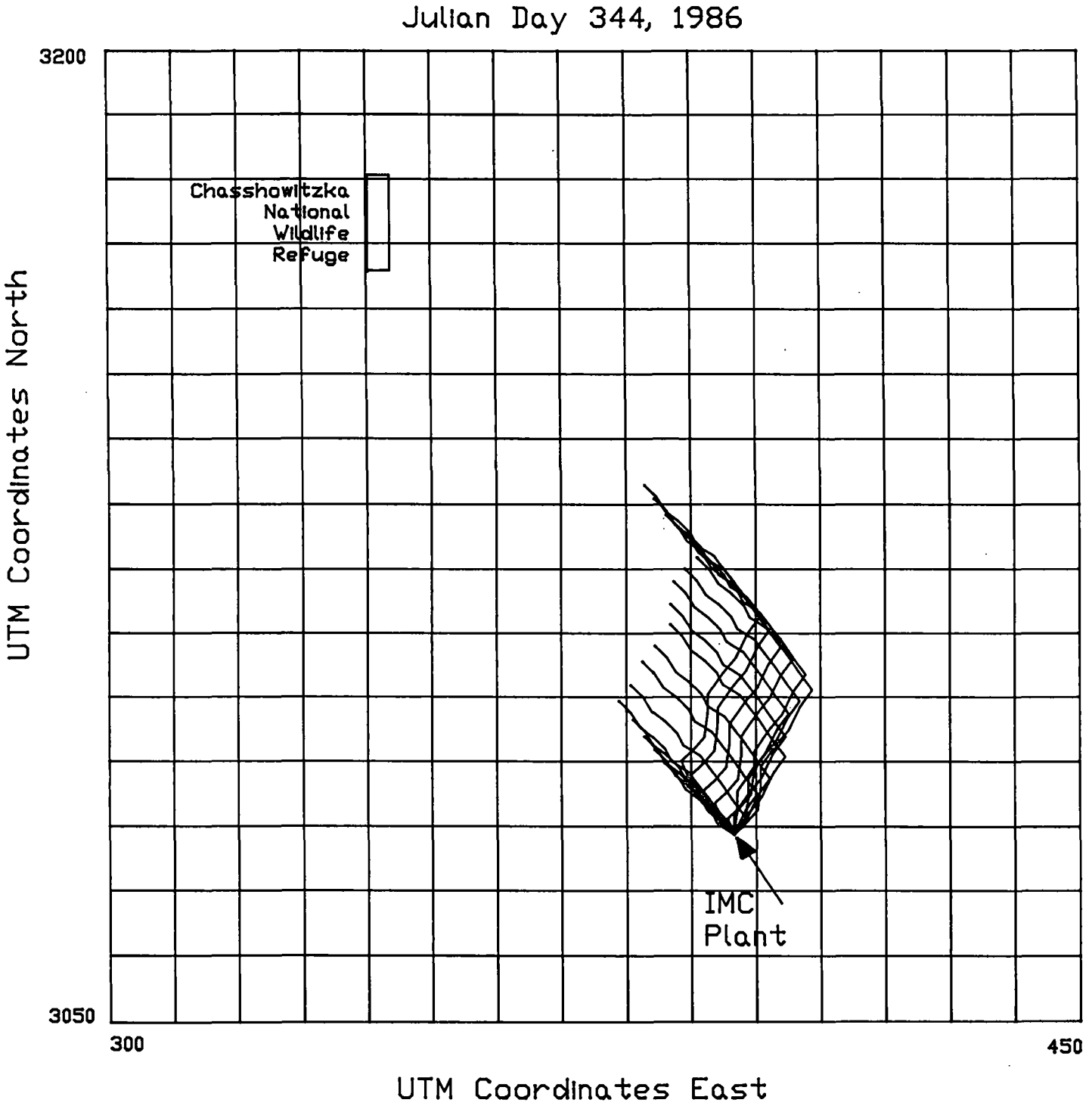
Chasshowitzka
National
Wildlife
Refuge
IMC
Plant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Chasshowitzka
National
Wildlife
Refuge
IMC
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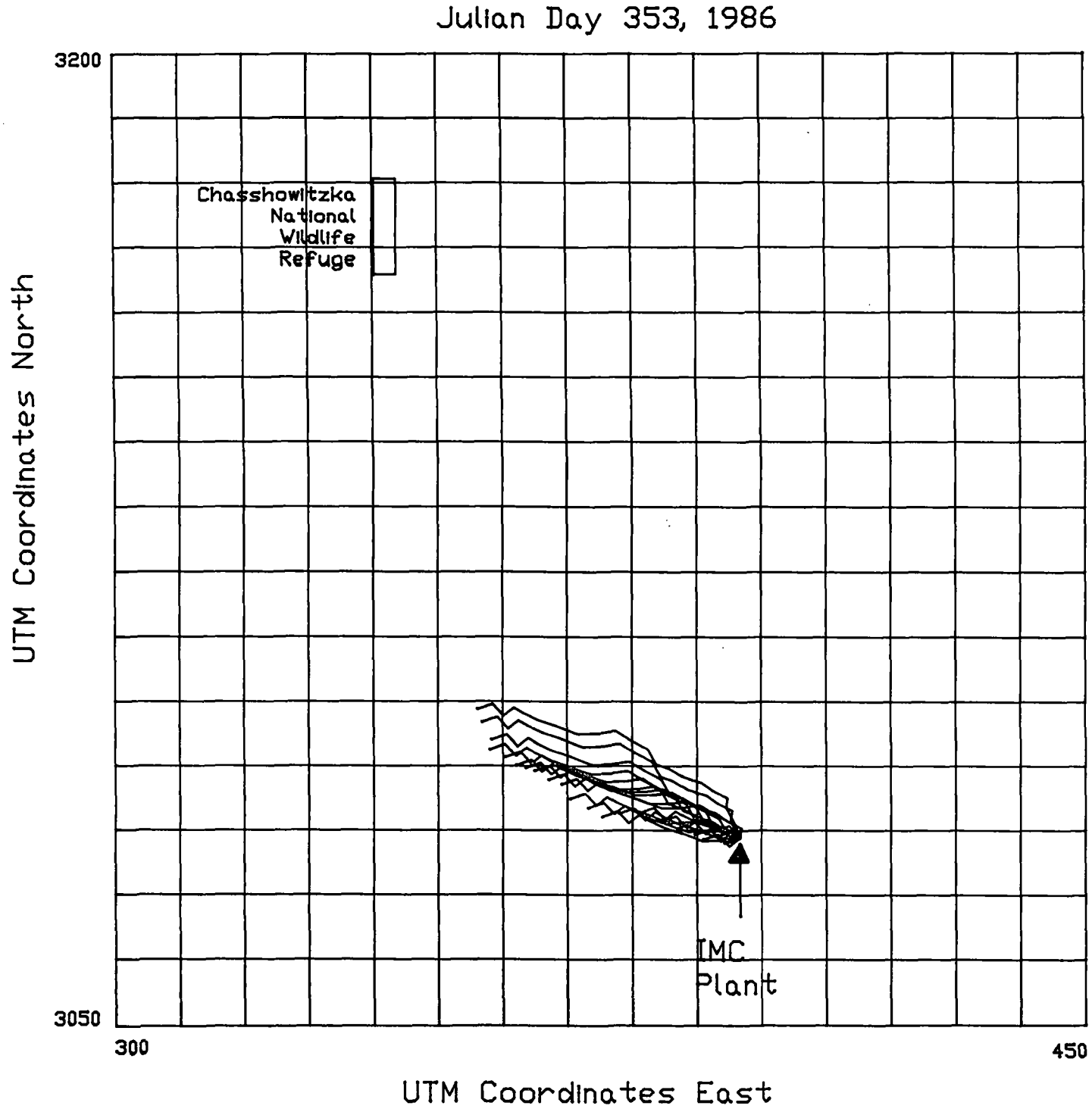
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National
Wildlife
Refuge
IMC
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