

# TEXT SEARCHABLE DOCUMENT - 2010

## Data Evaluation Record on the field volatility of dimethyl disulfide

PMRA Submission Number {.....}

EPA MRID Number 47052821

**Data Requirement:** PMRA Data Code:  
EPA DP Barcode: D339684  
OECD Data Point:  
EPA Guideline: 163-3

**Test material:** Dimethyl disulfide

**End Use Product name:** DMDS  
**Formulation type:** Liquid

**Concentration of a.i.:** 99.5%

### Active ingredient

Common name: Dimethyl disulfide.

Chemical name:

IUPAC name: Dimethyl disulfide.

CAS name: Dimethyl disulfide.

CAS No.: 624-92-0.

Synonyms: DMDS, dimethyldisulfide, DMDS TC, dimethyl disulfide TC, ATOMAL, 2,3-dithiabutane, methyl disulfide, (methyldithio)methane, (methyldisulfanyl)methane, (methyldithio)methane, methyldithion ethane.

Smiles string: S(SC)C (EPI Suite, v3.12 SMILES String).

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**Use Site Category**  
**EPA PC Code:** 029088

**CITATION:** Bennett, R.M., and S.C. Artz. 2007. Field volatility of dimethyldisulfide (DMDS) following shank application and immediate covering. Unpublished study performed by Cerexagri, Inc., King of Prussia, Pennsylvania; Pacific Ag Group, San Luis Obispo, California; Access Research and Consulting, Inc., Fresno, California; Paragon Research Services, Fresno,



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California; Sullivan Environmental Consulting, Inc., Alexandria, Virginia; PTRL West, Inc., Hercules, California; Agvise Laboratories, Northwood, North Dakota; sponsored and submitted by Cerexagri, Inc., King of Prussia, Pennsylvania (pp. 15-16). Study No.: KP-2004-06. Experiment initiated August 16, 2004 and completed November 1, 2006 (pp. 13-14). Final report issued January 29, 2007.

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### EXECUTIVE SUMMARY

The volatilization of dimethyl disulfide (DMDS; formulation No. TD-2479-01 containing 99.5% DMDS) was studied whereby one application was made to pre-formed raised beds in Yuma, Arizona, by shallow shank injection, and was immediately covered with a clear plastic tarpaulin cover. This study was intended as a pilot study, and the test material was applied at an exaggerated nominal application rate of 800 lbs formulation/A (actual application rate 784 lbs. DMDS formulation/A, equivalent to *ca.* 780 lbs a.i./A or 98% of the target application rate), rather than the proposed maximum application rate of 600 lbs formulation/A. The test plots (330 ft. x 330 ft.) contained 47 raised beds, each 67 inches wide and 4-6 inches high (*ca.* 2.5 acres total), of loamy sand/sand soil (0-15 cm depth, 0.4% organic matter, pH 8.6, bulk density 1.36 g/cc, CEC 9.4 meq/100g soil, moisture at 1/3 bar 5.3%), and were located in Yuma, Arizona (USEPA Crop Production Region IX). The area was representative of the strawberry and vegetable growing regions of southeastern Arizona in which fumigation practices are conducted.

Four air monitoring samplers were located in each of three concentric circles (five samplers in the second circle) at distances from the outer edge of the treated test plot of *ca.* 25, 50, and 200 feet, with air collection tubes located 5 feet above the soil surface. The layout for this field volatility study is shown in Attachment 2. Air samples were collected using SKC air sampling tubes (flow rate *ca.* 2 L/minute) containing a two-stage Anasorb CSC coconut charcoal sorbent (400 mg in primary bed and 200 mg in backup bed in each tube). Air samples were collected on day 0 for hours 0-7, 7-11, 11-17, and 17-23. Sampling occurred every 6 hours on days 1 to 8. Air samples were collected every 12 hours on days 9 to 14. Samples were shipped and stored frozen prior to analysis. For 0-2 day samples, the sorbent tube was extracted in a *ca.* 15-mL culture tube with 5 mL of methyl acetate by vortexing for *ca.* 30 seconds, sonicated for *ca.* 2 minutes and shaken on a wrist-action shaker for *ca.* 30 minutes followed by sonicating for *ca.* 1 minute and vortexing for *ca.* 30 seconds; this method was not validated. Day 3-14 samples were extracted with methyl acetate (5 mL day 3 samples, 10 mL day 4-14 samples) in a 15-mL culture tube by vortexing for 30 seconds. The samples were allowed to sit for at least 10 minutes, and were centrifuged at 2500 rpm for 5 minutes; this method was validated. An aliquot of the extract was analyzed by GC/MS with MS under positive ion mode. DMDS was identified by comparison to reference standards (analytical purity 99.5-99.8%); transformation products were not analyzed for in the samples. For 0-2 day samples, the LOQ was 1.0 µg DMDS and the LOD was *ca.* 0.5 µg DMDS. For 3-14 day samples, the LOQ was 0.1 µg DMDS and the LOD was 0.01 µg DMDS.

The reviewer estimated meteorological ranges based on graphical data (pp. 262 – 268). During the study, wind speed at 10 meters above ground ranged from *ca.* 0-10 m/s, temperature at 1.5 meters above ground ranged from *ca.* 15-45°C, and soil moisture at -5 cm and -15 cm below ground ranged from *ca.* 13.7-15.2% and 14.9-16.4%, respectively. Soil temperature ranged between *ca.* 21 – 52°C and 22 - 45°C at 5 cm and 15 cm below the surface, respectively.

Although the method used for the 0-2 day samples analyzed at the Ceregerxi laboratory was not validated, concurrent laboratory fortification recovery samples run along with the samples indicated acceptable results for the analysis of DMDS on air tube matrix. The overall average

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recovery for DMDS fortified at 1, 5, 100, and 5000  $\mu\text{g}$  was  $93 \pm 26\%$  ( $n = 75$ ; range 10% to 170%). Recoveries from three field fortification samples ( $n = 1$ ) fortified at 1, 100, and 5000  $\mu\text{g}$  were 110%, 100%, and 130%, respectively.

For day 3-14 samples analyzed at the PRTL West laboratory, procedural recovery samples were prepared by fortifying untreated control charcoal tubes with 0.1  $\mu\text{g}$  and 100  $\mu\text{g}$  of DMDS prior to extraction. Recoveries averaged  $95 \pm 7\%$  ( $n = 36$ ) and  $93 \pm 3\%$  ( $n = 36$ ), respectively. The overall average recovery of field samples fortified at 1.0, 5.0, 100, and 5,000  $\mu\text{g}$  was  $90 \pm 18\%$  ( $n = 19$ ; range 61% to 118%, excluding outliers); concurrent laboratory fortification recoveries ranged from 84% to 90%. Overall average recoveries from travel fortification samples fortified at 1.0, 5.0, 100, and 5,000  $\mu\text{g}$  ranged from 93% to 118% ( $n = 12$ ); concurrent laboratory fortification recoveries at fortifications of 1.0, 100, and 5,000  $\mu\text{g}$  ranged from 90% to 91%.

DMDS was detected below the LOQ ( $<0.10 \mu\text{g}$ ) in pre-application control samples ( $n = 10$ ) collected from 10 center mast stations over 24 hours at 12-hour intervals. DMDS was reported in terms of total micrograms per cubic meter environmental concentration in air ( $\mu\text{g}/\text{m}^3$ ) by dividing the concentration from the sorbent tube extracts by the total volume of air collected. Total DMDS for the day 0 samples ranged from  $<1.0 \mu\text{g}/\text{m}^3$  (Day 0 – 3C1, 2C2) to a maximum of  $8158.047 \mu\text{g}/\text{m}^3$  (Day 0 – 2E3). Total DMDS for the day 1 samples ranged from  $<1.0 \mu\text{g}/\text{m}^3$  (Day 1 – 2C2, 3B2, 3C2) to  $1224.227 \mu\text{g}/\text{m}^3$  (Day 1 – 1C1), and for day 2 samples ranged from  $<1.0 \mu\text{g}/\text{m}^3$  (Day 2 – 3D2, 2C3, 3B3, 3C3) to  $192.305 \mu\text{g}/\text{m}^3$  (Day 2 – 1B4). Residues declined through day 14 to between not detected and  $0.080 \mu\text{g}/\text{m}^3$ .

Given the available data in this field volatility study, a flux profile can be back-calculated from the linear relationship between monitored off-field concentrations and the flux rate. The ISCST3 model is utilized to arrive at modeled concentrations from a normalized flux rate. The flux rates are determined based upon the relationship of the ISCST3 modeled concentrations at the normalized flux rate and monitored concentrations. A flux rate of *ca.*  $313 \mu\text{g}/\text{m}^2\text{s}$  was calculated during the first seven hours of the study. This was followed by a maximum DMDS flux of *ca.*  $1,660 \mu\text{g}/\text{m}^2\text{s}$  throughout the next four hours. The DMDS flux rate decreased to *ca.*  $56 \mu\text{g}/\text{m}^2\text{s}$  by hours 17 – 24. Flux rates calculated by the reviewer for each period for the first 73 hours of the study are shown below.

### Flux Rates Based on Indirect Method (Application Rate 780 lbs. a.i./A):

Day 0, Hours 0 – 7:	313 $\mu\text{g}/\text{m}^2\text{s}$
Day 0, Hours 7 – 11:	1,660 $\mu\text{g}/\text{m}^2\text{s}$
Day 0, Hours 11 – 17:	1,067 $\mu\text{g}/\text{m}^2\text{s}$
Day 0, Hours 17 – 23:	460 $\mu\text{g}/\text{m}^2\text{s}$
Day 0, Hour 23 – Day 1, Hour 5	110 $\mu\text{g}/\text{m}^2\text{s}$
Day 1, Hour 5 - 11	76 $\mu\text{g}/\text{m}^2\text{s}$
Day 1, Hours 11 – 17	39 $\mu\text{g}/\text{m}^2\text{s}$
Day 1, Hours 17 - 23	19 $\mu\text{g}/\text{m}^2\text{s}$
Day 1, Hour 23 – Day 2 Hour 5	37 $\mu\text{g}/\text{m}^2\text{s}$

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Day 2, Hour 5 - 11                      5  $\mu\text{g}/\text{m}^2\text{s}$   
Day 2, Hours 11 - 17                    11  $\mu\text{g}/\text{m}^2\text{s}$   
Day 2 Hours 17 - 23                    14  $\mu\text{g}/\text{m}^2\text{s}$

**Study Acceptability:** This study is classified Acceptable. No significant deviations from good scientific practices were noted.

### MATERIALS AND METHODS

Dimethyl disulfide (DMDS; formulated product containing DMDS; Formulation No. TD-2479-01 containing 99.5% DMDS) was applied in one application to pre-formed raised beds by shallow shank injection and was immediately covered with a clear plastic tarpaulin cover (1.5 mm thick; pp. 16-18). This study was intended as a pilot study, and the test material was applied at an exaggerated nominal application rate of 800 lbs formulation/A (actual application rate 784 lbs. DMDS formulation/A, equivalent to *ca.* 780 lbs a.i./A), rather than the proposed maximum application rate of 600 lbs formulation/A (pp. 10-12; Table 2, p. 19). The test plots (330 ft. x 330 ft.) contained 47 raised beds, each 67 inches wide and 4-6 inches high (*ca.* 2.5 acres total; actual total treated 1.995 acres), of loamy sand/sand soil (0-15 cm depth, 0.4% organic matter, pH 8.6, bulk density 1.36 g/cc, CEC 9.4 meq/100g soil, moisture at 1/3 bar 5.3%), and were located in Yuma, Arizona (USEPA Crop Production Region IX; Table 3, p. 24; Appendix 4, p. 214, Tables 3-4, pp. 221-222, Figures 1-2, pp. 254-255). The area was representative of the strawberry and vegetable growing regions of southeastern Arizona in which fumigation practices are conducted.

Table 1. Physico-chemical properties of DMDS:

Parameter	Value	Comment
Molecular weight (g/mol)	Not reported.	
Chemical formula	$\text{C}_2\text{H}_6\text{S}_2$	
Water Solubility	Not reported.	
Vapor Pressure/Volatility	Not reported.	
UV Absorption	Not reported.	
pKa	Not reported.	
$K_{ow}/\log K_{ow}$	Not reported.	
Stability of compound at room temperature, if provided	Not reported.	

Data were obtained from Table 1, p. 18 of the study report.

The treated plot was prepared and irrigated prior to application according to typical agronomic practices for the region (pp. 17-18, 25; Appendix 4, pp. 213-215). Prior to application, the soil moisture was estimated as 50-85% moisture capacity using an in-field, ball-formation method. Irrigation and maintenance chemicals were not applied to the test plots during the in-life phase of the study. The pesticide and crop history of the test area is summarized in Appendix 4, Table 2, p. 220 of the study report. Prior to application, soil was collected from four areas inside the test plot to a depth of 6 feet, segmented into 6-inch increments, and composited by depth for

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characterization (p. 23). Soil was characterized as sand and loamy sand (Table 3, p. 24; Appendix 4, Table 3, p. 221).

The test substance was a typical end-use product, and the application and agronomic practices used reflected normal crop culture in the area where the study was conducted. The test substance was applied using typical commercial application equipment for shallow shank, injection fumigation. The application equipment consisted of a tractor equipped with a front platform where DMDS and nitrogen tanks were mounted, and a rear mounted sled equipped with fumigant shanks, bed-top press, shank line drags, and tarpaulin laying equipment (p. 25; Appendix 4, Figure 3, p. 256, Appendix B, p. 259). The application flow was split by a manifold to three injection shanks (set at *ca.* 8 inch depth). Immediately after injection, the treated soil was covered by tarpaulin (1.5 mil clear plastic, #PLO-41036, manufactured by Plassein, Intl., Ontario, Canada). The actual application rate was 784 lbs DMDS formulation/acre, equivalent to 98% of the target application rate (p. 26; Appendix 4, Table 4, p. 222).

Air monitoring areas were located in three concentric circles at distances of *ca.* 25, 50, and 200 feet from the treated test plot, with air collection tubes located 5 feet above the soil surface (p. 20; Figure 1, p. 11; Appendix 4, p. 213; Figure 2, p. 255). The first inner circle was located 25 feet from the outer edge of the treated plot and contained four air sampling masts placed at 90 degree postings around the treated plot. The middle circle (50 ft.) contained four air sampling masts placed at 30 degrees offset from the inner circle masts, and one duplicate mast placed at the first 30 degree station from the north. The outer circle (200 ft.) contained four air sampling masts placed 60 degrees offset from the inner circle masts. All air sampling masts were placed in the field prior to application.

Air samples were collected using SKC air sampling tubes (#226-09) containing a two-stage Anasorb CSC coconut charcoal sorbent (400 mg in primary bed and 200 mg in backup bed in each tube; pp. 26-27; Appendix 4, p. 215). One SKC (model 224-44XR) air sampling pump was placed on each mast at a height of *ca.* 5 feet, and was attached to the sampling tubes via Tygon tubing wrapped in aluminum foil; the flow rate was *ca.* 2 L/minute.

Air samples were collected on days 0-8 at *ca.* 0 to 6 hours, 6 to 12 hours, 12 to 18 hours, and 18 to 24 hours (pp. 19-27; Appendix 4, pp. 215-216). Sampling occurred every 12 hours on days 9 to 14. At the end of each sampling period, flow rates were verified and the air sampling tube was disconnected and capped, labeled, and placed in a plastic bag. A new tube was placed on the pump. Samples were placed in a cooler with dry ice, transported to storage freezers (-18°F to -3°F), then shipped and stored frozen prior to analysis.

The application started on August 17 at 7:30 am, and the air sampling initiated before then at 7:00 am.

On-site weather station equipment monitored meteorological data including air temperature, humidity, wind speed and direction, precipitation, and cloud cover and/or solar radiation (p. 26). Soil temperature and moisture data were also collected. Soil and meteorological data were submitted in a separate report.

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Pre-application control air samples were also collected from five off-field air sampling stations prior to application over a 24-hour period (pp. 21, 27). Two sets of triplicate field fortifications were prepared by Cerexagri, Inc. consisting of sorbent tubes fortified at 0.0, 1.0, 5.0, 100, and 5000  $\mu\text{g}$  and shipped to the field prior to application, where they were placed into air sampling pumps calibrated to 2.0 L/minute and weathered for *ca.* 12 hours (Appendix 4, p. 216). The second set of field fortification samples was weathered for the other 12-hour period prior to application. After weathering, tubes were removed from the air sampling pumps, capped, labeled, bagged, and handled identically as the study samples. Travel samples (1.0, 5.0, 100, 5000  $\mu\text{g}$ ) were prepared and shipped frozen from the analytical laboratory to the field, were kept in frozen storage, and then returned frozen to the analytical laboratory.

All day 0-2 air samples were analyzed at Cerexagri, Inc., and pre-application, field fortification (all but 3 samples), travel fortification samples, and day 3-14 air samples were analyzed by PTRL West, Inc (p. 28). For Cerexagri, Inc., the Limit of Quantification (LOQ) was determined based on the lowest DMDS fortification with acceptable recoveries, and the Limit of Detection was estimated based on the lowest calibration standard that could be reliably detected. For Cerexagri, Inc., the LOQ was established as 1.0  $\mu\text{g}$  total on the anasorb tube (front or back), and the LOD was estimated as 0.5  $\mu\text{g}$  total on the anasorb tube. The Cerexagri, Inc. analytical method (Method KP-223R0) was not validated. For PTRL West, the LOQ was the lowest validated fortification level of 0.1  $\mu\text{g}$  total on the anasorb tube (front or back), and the LOD was estimated based on the lowest calibrant concentration (0.005  $\mu\text{g}$  DMDS/mL final extract) as 0.01  $\mu\text{g}$  DMDS detected on the anasorb tube (p. 32).

The front section only of day 0-2 air samples was analyzed using Cerexagri, Inc. laboratory analytical method KP-223R0 entitled *Analytical Method for DMDS in Air* (pp. 30-31; Appendix 5, pp. 287-288). The sorbent material was removed from the sorbent tube and extracted in a *ca.* 15-mL culture tube with 5 mL of methyl acetate (see Reviewer's Comment) by vortexing for *ca.* 30 seconds, sonicating for *ca.* 2 minutes, and shaking on a wrist-action shaker for *ca.* 30 minutes, followed by sonicating for *ca.* 1 minute, and vortexing for *ca.* 30 seconds. An aliquot of the extract was analyzed by GC/MS using a SPB-1 sulfur capillary column (30 m x 0.32 mm, 4.0  $\mu\text{m}$  film thickness) with MS under positive ion mode. DMDS was identified by comparison to reference standards (analytical purity 99.5%); transformation products were not analyzed for in the samples (p. 29; Appendix 3, pp. 199-200). A few back portions of the sorbent tubes were also measured, and it was determined that significant breakthrough of the residue from the front portion of the sample did not occur.

Although the method used by Cerexagri, Inc. laboratory was not validated for the 0-2 day retrievals, concurrent laboratory fortification recovery samples run along with the samples indicated acceptable results for the analysis of DMDS on air tube matrix (see Reviewer's Comment; pp. 30, 35-36; Appendix 5, pp. 290-291). The average recoveries for DMDS at fortification levels of 1, 5, 100, and 5000  $\mu\text{g}$  were  $85 \pm 46\%$  ( $n = 19$ ; range 10% to 170%),  $93 \pm 17\%$  ( $n = 19$ ; range 54% to 120%),  $91 \pm 9\%$  ( $n = 18$ ; range 69 to 112%), and  $104 \pm 15\%$  ( $n = 19$ ; range 70% to 124%), respectively (see Reviewer's Comment; Appendix 5, Table 2, p. 292 and

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Table 4, pp. 297-300). Recoveries from three field fortification samples ( $n = 1$ ) fortified at 1, 100, and 5000  $\mu\text{g}$  were 110%, 100%, and 130%, respectively (Appendix 5, p. 293, Table 5, p. 301).

Day 3-14 air samples were analyzed by PTRL West using a modification of the Cerexagri method (KP-223R0; see Reviewer's Comment; p. 31; Appendix 6, pp. 455-460, 463). The charcoal sorbent material was removed and extracted with methyl acetate (5 mL day 3 samples, 10 mL day 4-14 samples) in a 15-mL culture tube by vortexing for 30 seconds. The samples were allowed to sit for at least 10 minutes, then were centrifuged at 2500 rpm for 5 minutes. An aliquot of the extract was analyzed by GC/MS using a Supelco SPB-1 Sulfur Capillary column (30 m x 0.32 mm i.d. x 4.0  $\mu\text{m}$  film thickness). DMDS was identified by comparison to reference standards (analytical purity 99.8%); transformation products were not analyzed for in the samples (p. 29; Appendix 3, pp. 201-202). There was no evidence of breakthrough of DMDS into the back portion of the air tubes for day 3 samples; therefore, day 4 through 14 samples, travel and field fortification samples were analyzed as whole tube samples.

The modified analytical method used by PTRL West laboratories was validated (p. 31; Appendix 6, pp. 455-460; 463-465). Procedural recovery samples were prepared by fortifying untreated control charcoal tubes with 0.1  $\mu\text{g}$  and 100  $\mu\text{g}$  DMDS prior to extraction; recoveries averaged  $95 \pm 7\%$  ( $n = 36$ ) and  $93 \pm 3\%$  ( $n = 36$ ), respectively (pp. 35-36; Appendix 6, p. 465; Table V, p. 473). Recoveries from field fortification samples fortified at 1.0, 5.0, 100, and 5,000  $\mu\text{g}$  averaged 86% (range 77-95%;  $n = 4$ ), 96% (range 64-118%;  $n = 5$ ), 84% (range 61-99%;  $n = 5$ ), and 92% (range 68-116%;  $n = 5$ ), respectively; concurrent laboratory fortification recoveries ( $n = 1$ ) were 85%, 84%, 90%, and 90%, respectively (Appendix 6, pp. 463-464, Table III, p. 471). Recoveries from travel fortification samples fortified at 1.0, 5.0, 100, and 5,000  $\mu\text{g}$  averaged 109% (range 98-130%,  $n = 3$ ), 109% (range 106-110%,  $n = 3$ ), 93% (range 90-96%;  $n = 3$ ), and 118% (range 114-120%,  $n = 3$ ), respectively; concurrent laboratory fortification recoveries ( $n = 1$ ) at fortifications of 1.0, 100, and 5,000  $\mu\text{g}$  were 90%, 91%, and 90%, respectively (Appendix 6, Table IV, p. 472).

### RESULTS/DISCUSSION

#### Monitored Concentrations, Meteorological, and Soil Data

DMDS was detected below the LOQ ( $<0.10 \mu\text{g}$ ) in pre-application control samples ( $n = 10$ ) collected prior to application from 10 center mast stations over 24 hours at 12-hour intervals (p. 38; Table 6, p. 43).

DMDS was reported in terms of total micrograms per cubic meter environmental concentration in air ( $\mu\text{g}/\text{m}^3$ ) by dividing the concentration from the sorbent tube extracts by the total volume of air collected (p. 34). Total DMDS for the day 0 samples ranged from  $<1.0 \mu\text{g}/\text{m}^3$  (Day 0 – 3C1, 2C2) to a maximum of 8158.047  $\mu\text{g}/\text{m}^3$  (Day 0 – 2E3; p. 39; Table 6, pp. 46-71). On day 1, total DMDS ranged from  $<1.0 \mu\text{g}/\text{m}^3$  (Day 1 – 2C2, 3B2, 3C2) to 1224.227  $\mu\text{g}/\text{m}^3$  (Day 1 – 1C1). On



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day 2, total DMDS ranged from  $<1.0 \mu\text{g}/\text{m}^3$  (Day 2 – 3D2, 2C3, 3B3, 3C3) to  $192.305 \mu\text{g}/\text{m}^3$  (Day 2 – 1B4). Residues declined through day 14 to between not detected and  $0.080 \mu\text{g}/\text{m}^3$ .

The reviewer estimated meteorological ranges based on graphical data presented in a separate, certified modeling report (p. 38; DMDS Yuma Met Data, Excel 2000 file; Meteorological Data Certification LTR David Sullivan 11 02 06). During the study, wind speed at 10 meters above ground ranged from *ca.* 0-10 m/s, temperature at 1.5 meters above ground ranged from *ca.* 15-45°C, and soil moisture at -5 cm and -15 cm below ground ranged from *ca.* 13.7-15.2% and 14.9-16.4%, respectively. Soil temperature ranged between *ca.* 21 – 52°C and 22 - 45°C at 5 cm and 15 cm below the surface, respectively. Plots of the measured soil properties are shown in Attachment 6.

### Flux Profile

The indirect method, commonly referred to as the “back calculation” method, was the technique employed for estimating flux rates from fields treated with for this field study given the available data. In the indirect method, air residue samples are collected at various locations outside the boundaries of a treated field. The layout of the field study configuration is shown in Attachment 2. Meteorological conditions, including air temperature, wind speed, and wind direction are also collected for the duration of the sampling event. The dimensions and orientation of the treated field, the location of the samplers, and the meteorological information is used in combination with the ISCST3 dispersion model (Version 02035) and a unit flux rate of  $0.001 \text{ g}/\text{m}^2\text{-s}$  to estimate concentrations at the sampler locations. Because the ISC model assumes a direct relationship between flux and the concentration at a given location, the results from the ISC model runs are compared to those concentrations actually measured and a regression is performed, using the modeled values along the x-axis and the measured values along the y-axis. If the linear regression does not result in a statistically significant relationship, the regression may be rerun forcing the intercept through the origin, or the data may be resorted, removing the spatial relationship of the concentrations, and a regression performed. The indirect method flux back calculation procedure is described in detail in Johnson et al., 1999.

Table 2 shows the flux profile over time that was calculated by the reviewer using the indirect method for the first 73 hours of the study. The spatial relationship between modeled and monitored concentrations generally is statistically significant as shown by the regression between the two variables (see Tables 5-3 and 5-4 in Attachment 5). No flux calculations were completed by the registrant. *Ca.*  $313 \mu\text{g}/\text{m}^2\text{s}$  was calculated during the first seven hours of the study. This was followed by a maximum DMDS flux of *ca.*  $1,660 \mu\text{g}/\text{m}^2\text{s}$  throughout the next four hours. The DMDS flux rate generally decreased to *ca.*  $14 \mu\text{g}/\text{m}^2\text{s}$  by hours 17 – 23 of Day 2.

Table 2. Flux rates obtained from Yuma, AZ study.

Period	Date/Time	Flux ( $\mu\text{g}/\text{m}^2\text{s}$ )	Reasoning
1	Day 0, Hours 0 - 7	313	Slope
2	Day 0, Hours 7 - 11	1,660	Slope

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Period	Date/Time	Flux ( $\mu\text{g}/\text{m}^2\text{s}$ )	Reasoning
3	Day 0, Hours 11 – 17	1,067	Slope, no intercept
4	Day 0, Hours 17 - 23	460	Slope, no intercept
5	Day 0, Hour 23 – Day 1, Hour 5	110	Slope, no intercept
6	Day 1, Hour 5 - 11	76	Slope
7	Day 1, Hours 11 – 17	39	Slope, no intercept
8	Day 1, Hours 17 - 23	19	Slope, no intercept
9	Day 1, Hour 23 – Day 2 Hour 5	37	Slope, no intercept
10	Day 1, Hour 5 - 11	5	Slope, no intercept
11	Day 1, Hours 11 – 17	11	Slope
12	Day 1, Hours 17 - 23	14	Slope

The ISC meteorological input for the indirect method is shown in Attachment 3, the ISC modeling files for the indirect method flux back calculation are shown in Attachment 4, and process showing the indirect method flux rate calculation is shown in Attachment 5.

### STUDY DEFICIENCIES

No significant deficiencies from study guidelines were noted.

### REVIEWER'S COMMENTS

1. For the concurrent laboratory fortification samples analyzed by Cerexagri, Inc. at the LOQ level (1  $\mu\text{g}$ ), high scatter was reported in the recovery, ranging from 10% to 170% recovered (Appendix 5, p. 291; Table 2, p. 292 and Table 4, pp. 297-300). There were five recoveries below 50% and four recoveries above 110% out of 19 total samples.
2. In the primary study report, the study author reported that DMDS was analyzed by Cerexagri, Inc. by extracting the sorbent tubes with methyl acetate (p. 30). However, in the analytical report submitted by Cerexagri, Inc., it was reported that the sorbent tubes were extracted with hexane (Appendix 5, pp. 287, 347, 436). The analytical report submitted by Cerexagri, Inc. does report the following in deviation no. 4 (Appendix 5, p. 430): *A modification in the extraction solvent and extraction procedures (similar to the methodology used for the samples analyzed at Cerexagri, Inc. labs) was developed at separate contract facilities and validation was performed on the modified methodology.* The reviewer is uncertain if the modification in the extraction solvent described in the deviation refers to the use of methyl acetate, as referenced in the primary study report, versus the use of hexane, as referenced in the analytical report.
3. The study author reported that the method used by Cerexagri, Inc. laboratories gave acceptable results for the analysis of MSDS on air tube matrix (p. 30). Based on the

## Data Evaluation Record on the field volatility of dimethyl disulfide

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analytical report, the reviewer believes this is a typographical error and should have read 'DMDS' (Appendix 5, p. 291; Table 2, p. 292). Also, the text of the analytical report refers to the recovery data in Table 1 of Appendix 5; the reviewer believes this a typographical error and should refer to Table 2 of Appendix 5.

4. PTRL West laboratory performed an independent validation of the Cerexagri laboratory method for analysis of DMDS from sorbent charcoal tubes with the following slight modification (Appendix 6, p. 458). The two sonication steps and 30-minute shaker bath step used by Cerexagri laboratories were omitted. The results obtained by PTRL West using the modified method were considered comparable to the results obtained by the Cerexagri laboratory method when comparing duplicate laboratory fortification samples at two fortification levels and extracted as described in each method (Appendix 6, p. 463). Another modification was made by extracting the front and back portions of each tube together in 10 mL of methyl acetate for the majority of the samples (days 4-14).
5. Total storage days for samples analyzed by PRTL West laboratory ranged from 760 days to 811 days (Appendix 6, p. 462; Table 1, p. 469). Storage intervals for day 1 and 2 samples analyzed by Cerexagri, Inc. could not be calculated because no extraction date was reported (pp. 37-38).
6. Three sample residue values (Day 0 – 3D1, 2A1 and 2E1) were extrapolated above the calibration curve (p. 40).
7. For field fortification samples analyzed by PTRL West, two outliers were excluded from statistical analysis: 18% at the 5 µg level and 570% at the 1 µg level (p. 36).
8. The study was conducted according to USEPA Pesticide Assessment Guidelines Subdivision N, 163-3 and in compliance with USEPA FIFRA (40 CFR, Part 160) Good Laboratory Practice standards (pp. 3-5, 10). Signed and dated Data Confidentiality, GLP compliance, Quality Assurance, and Certificate of Authenticity statements were provided (pp. 2-7).

### REFERENCES

Johnson, B. , Barry, T., and Wofford P. 1999. Workbook for Gaussian Modeling Analysis of Air Concentrations Measurements. State of California Environmental Protection Agency, Department of Pesticide Regulation. Sacramento, CA

Reiss, R. and Giffin J., 2004. A Probabilistic Exposure and Risk Model for Fumigant Bystander Exposures using Iodomethane as a Case Study". Report prepared for the FIFRA Science Advisory Panel and sponsored by Arvesta Corporation.

Turner, D.B., 1970: Workbook of Atmospheric Dispersion Estimates. PHS Publication No. 999-AP-26. U.S. Department of Health, Education and Welfare, National Air Pollution Control Administration, Cincinnati, Ohio.

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**Attachment 1: Structure of Parent Compound**

## Data Evaluation Record on the field volatility of dimethyl disulfide

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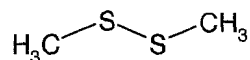
**Dimethyl disulfide [DMDS, dimethyldisulfide, DMDS TC, dimethyl disulfide TC, ATOMAL, 2,3-dithiabutane, methyl disulfide, (methyldithio)methane, (methyldisulfanyl)methane, (methyldithio)methane, methyldithion ethane]**

**IUPAC Name:** Dimethyl disulfide.

**CAS Name:** Dimethyl disulfide.

**CAS Number:** 624-92-0.

**SMILES String:** S(SC)C (EPI Suite, v3.12 SMILES String).



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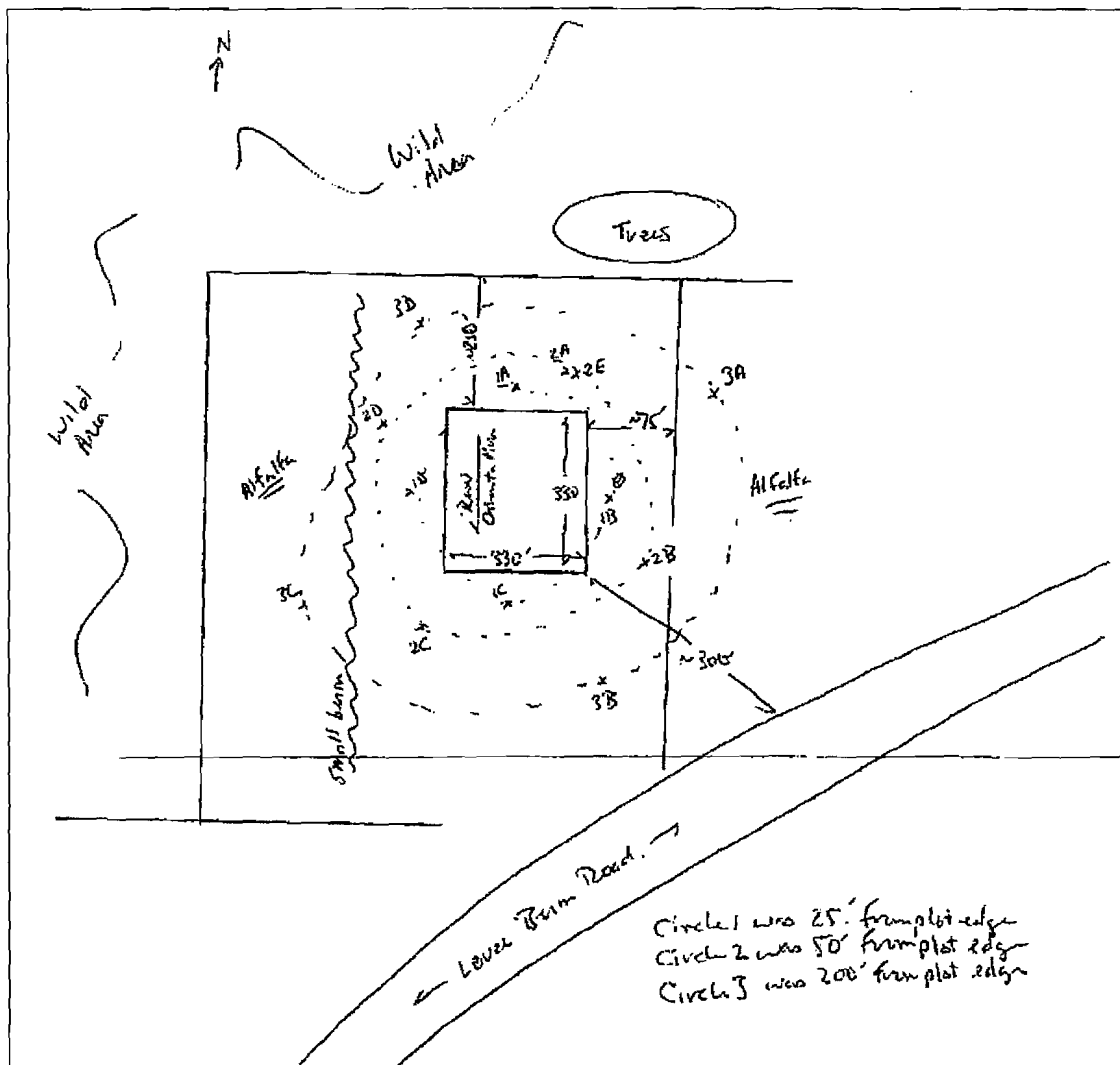
**Attachment 2: Field Volatility Study Design**

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Figure 2-1. Layout of air monitors at 5-feet above ground-level located along 25, 50, and 200-foot radial distances from the field (shown within the square boundary).



From p.255 of the study report.

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**Attachment 3: ISC Model Meteorological Data Input**



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Table 3-1 Meteorological data input into ISCST3 model.

Date	Hour	Vector Wind Direction (degrees)	Wind Speed (m/s)	Temperature (K)	Average Solar Radiation (W/m <sup>2</sup> )	Stability <sup>1</sup>
8/17/04	7	301.895	0.59	296.65	48.67	4
8/17/04	8	110.52667	1.29	301.15	232.75	3
8/17/04	9	22.123333	0.94	304.73	440.93	2
8/17/04	10	307.61085	2.92	307.94	641.43	3
8/17/04	11	346.96167	5.36	309.50	801.82	3
8/17/04	12	356.21833	4.48	310.58	904.70	2
8/17/04	13	4.8366667	4.37	311.70	944.47	2
8/17/04	14	11.561667	3.63	312.42	923.35	2
8/17/04	15	22.156667	3.80	313.17	848.90	2
8/17/04	16	32.258333	3.43	313.54	732.63	2
8/17/04	17	36.546667	4.87	313.83	567.22	3
8/17/04	18	37.698333	4.50	313.07	346.02	3
8/17/04	19	41.385	3.68	311.57	129.62	4
8/17/04	20	48.331667	3.48	308.42	2.93	4
8/17/04	21	40.411667	4.09	306.36	0.00	4
8/17/04	22	28.255	2.96	304.02	0.00	4
8/17/04	23	76.505	2.26	302.79	0.00	4
8/17/04	24	6.3266667	3.03	301.29	0.00	4
8/18/04	1	347.88333	2.91	300.32	0.00	4
8/18/04	2	331.595	4.35	301.82	0.00	4
8/18/04	3	333.85667	1.60	300.16	0.00	4
8/18/04	4	51.381183	1.60	297.28	0.00	4
8/18/04	5	224.95882	0.48	295.41	0.00	4
8/18/04	6	185.64828	0.07	293.92	0.22	4
8/18/04	7	257.4945	1.17	296.00	51.58	3
8/18/04	8	32.61375	1.50	300.38	239.03	2
8/18/04	9	356.44667	0.57	305.93	453.13	2
8/18/04	10	11.09	2.69	309.04	650.95	3
8/18/04	11	27.91	3.35	310.35	802.42	2
8/18/04	12	33.408333	3.14	311.45	903.53	2
8/18/04	13	39.336667	4.07	312.57	950.37	2
8/18/04	14	28.573333	3.67	313.30	927.62	2
8/18/04	15	29.174117	3.70	314.02	851.23	2
8/18/04	16	23.028333	4.53	314.40	743.43	2
8/18/04	17	31.701667	5.15	314.21	516.10	3
8/18/04	18	31.496667	4.62	312.67	211.92	3
8/18/04	19	36.136667	4.16	310.36	67.23	4
8/18/04	20	23.156667	4.42	307.01	6.67	4
8/18/04	21	24.503333	4.22	304.42	0.00	4
8/18/04	22	341.89717	2.52	302.24	0.00	4
8/18/04	23	19.231867	1.00	299.91	0.00	4

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Date	Hour	Vector Wind Direction (degrees)	Wind Speed (m/s)	Temperature (K)	Average Solar Radiation (W/m <sup>2</sup> )	Stability <sup>1</sup>
8/18/04	24	335.8872	1.11	298.08	0.00	4
8/19/04	1	260.67433	4.00	300.69	0.00	4
8/19/04	2	266.90033	4.27	303.18	0.00	4
8/19/04	3	282.255	2.97	301.71	0.00	4
8/19/04	4	309.15385	1.85	298.93	0.00	4
8/19/04	5	234.48078	0.76	295.50	0.00	4
8/19/04	6	267.67667	0.45	293.59	0.23	4
8/19/04	7	123.86	1.65	294.40	57.67	3
8/19/04	8	337.0685	0.36	299.07	194.35	2
8/19/04	9	347.66167	1.57	303.28	423.37	2
8/19/04	10	241.92683	2.99	307.29	609.92	3
8/19/04	11	271.56533	4.33	309.07	824.68	2
8/19/04	12	263.95467	3.66	310.56	960.18	2
8/19/04	13	263.14650	3.07	311.54	947.35	2
8/19/04	14	309.81600	2.61	312.61	866.80	2
8/19/04	15	17.59800	1.54	313.57	790.98	1
8/19/04	16	47.83725	2.84	313.74	767.10	2
8/19/04	17	25.62127	2.02	313.58	446.58	3
8/19/04	18	92.44915	1.35	313.55	320.80	2
8/19/04	19	25.20500	3.83	311.73	137.75	4
8/19/04	20	1.88333	4.45	308.78	6.82	4
8/19/04	21	25.61667	4.29	305.19	0.00	4
8/19/04	22	17.93000	2.32	302.27	0.00	4
8/19/04	23	342.66000	3.05	303.85	0.00	4
8/19/04	24	23.02500	1.90	301.52	0.00	4
8/20/04	1	63.15000	1.82	298.14	0.00	4
8/20/04	2	136.07855	1.36	295.98	0.00	4
8/20/04	3	149.27500	1.66	294.91	0.00	4
8/20/04	4	230.43018	0.34	293.65	0.00	4
8/20/04	5	241.53117	0.58	292.04	0.00	4
8/20/04	6	92.69167	1.41	292.58	0.15	4

1. Wind measurements collected at 10 meters above ground level.
2. Wind direction in table is shown as vectors, i.e., the direction toward which the wind is blowing expressed in degrees from 0 degrees north.
3. Temperature measurements collected at 1.5 meters above ground level.
4. Stability class (1 = unstable, 2 = unstable, 3= unstable, 4= neutral, 5 = stable) calculated by reviewer from average solar radiation and wind speed using the Turner Method (Turner,

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1970). Unstable conditions imply highly turbulent conditions and stable conditions imply stagnant conditions.

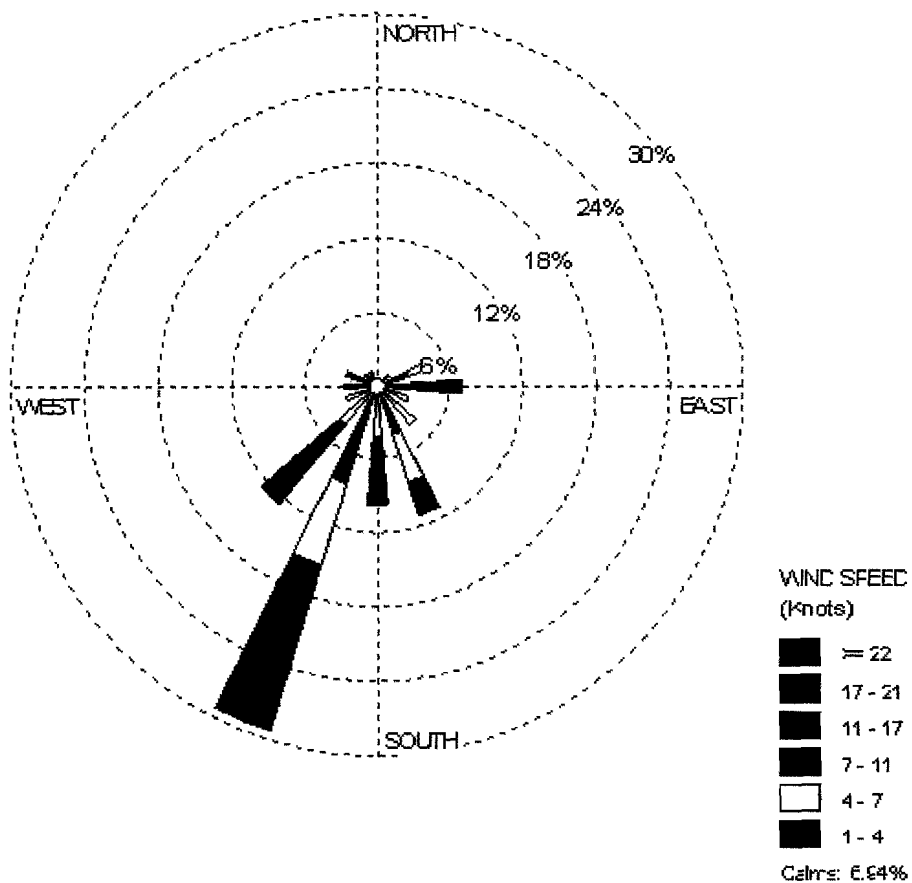
5. Urban and rural mixing heights (not shown) are held constant at 300 meters per Reiss, R. and Griffin, J. 2004.

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Figure 3-1. Wind rose at 10-meters of ISC meteorological file.



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**Attachment 4: ISC Modeling Files for Flux Back Calculation**

Figure 4-1. ISCST3 input file.

CO STARTING  
CO TITLEONE DMDS Analysis - Shank Injection, Yuma, AZ  
CO MODELOPT DFAULT RURAL CONC  
CO AVERTIME 1  
CO POLLUTID DMDS  
CO FLAGPOLE 1.5  
CO RUNORNOT RUN  
CO FINISHED

SO STARTING  
SO LOCATION AREA1 AREA 0.0 0.0 0.0  
SO SRCPARAM AREA1 0.001 0.0 100.6 100.6  
SO SRCGROUP ALL  
SO FINISHED

RE STARTING  
RE DISCCART 50.3 108.2 1.5  
RE DISCCART 108.2 50.3 1.5  
RE DISCCART 50.3 -7.6 1.5  
RE DISCCART -7.6 50.3 1.5  
RE DISCCART 86.9 113.8 1.5  
RE DISCCART 113.8 13.6 1.5  
RE DISCCART 13.6 -13.2 1.5  
RE DISCCART -13.2 86.9 1.5  
RE DISCCART 153.4 109.8 1.5  
RE DISCCART 109.8 -52.8 1.5  
RE DISCCART -52.8 -9.2 1.5  
RE DISCCART -9.2 153.4 1.5  
RE FINISHED

ME STARTING  
ME INPUTFIL c:\dmds\yuma2.met  
ME ANEMHGHT 6.1 METERS  
ME SURFDATA 99999 2005 Yuma  
ME UAIRDATA 99999 2005 Yuma  
ME FINISHED

OU STARTING  
OU RECTABLE ALLAVE FIRST  
OU POSTFILE 1 ALL PLOT c:\dmds\yuma2.plt  
OU FINISHED

Figure 4-2. ISC output file of hourly concentrations at off-field receptors.

```

* ISCST3 (02035): DMDS Analysis - Shank Injection, Yuma, AZ
* MODELING OPTIONS USED:
* CONC          RURAL FLAT  FLGPOL DFAULT
*          POST/PLOT FILE OF CONCURRENT 1-HR VALUES FOR SOURCE GROUP: ALL
*          FOR A TOTAL OF 12 RECEPTORS.
*          FORMAT: (3(1X,F13.5),1X,F8.2,2X,A6,2X,A8,2X,I8.8,2X,A8)
*          X          Y          AVERAGE CONC  ZELEV          AVE          GRP          DATE          NET ID
*          -----
50.30000    108.20000    12690.56540    0.00    1-HR    ALL    05011707    NA
108.20000    50.30000    0.00000    0.00    1-HR    ALL    05011707    NA
50.30000    -7.60000    0.00000    0.00    1-HR    ALL    05011707    NA
-7.60000    50.30000    20949.34180    0.00    1-HR    ALL    05011707    NA
86.90000    113.80000    3.18704    0.00    1-HR    ALL    05011707    NA
113.80000    13.60000    0.00000    0.00    1-HR    ALL    05011707    NA
13.60000    -13.20000    0.00000    0.00    1-HR    ALL    05011707    NA
-13.20000    86.90000    25301.13870    0.00    1-HR    ALL    05011707    NA
153.39999    109.80000    0.00000    0.00    1-HR    ALL    05011707    NA
109.80000    -52.80000    0.00000    0.00    1-HR    ALL    05011707    NA
-52.80000    -9.20000    0.00000    0.00    1-HR    ALL    05011707    NA
-9.20000    153.39999    4331.93652    0.00    1-HR    ALL    05011707    NA
50.30000    108.20000    0.00000    0.00    1-HR    ALL    05011708    NA
108.20000    50.30000    14571.63480    0.00    1-HR    ALL    05011708    NA
50.30000    -7.60000    5394.07324    0.00    1-HR    ALL    05011708    NA
-7.60000    50.30000    0.00000    0.00    1-HR    ALL    05011708    NA
86.90000    113.80000    0.00000    0.00    1-HR    ALL    05011708    NA
113.80000    13.60000    14210.82030    0.00    1-HR    ALL    05011708    NA
13.60000    -13.20000    0.26140    0.00    1-HR    ALL    05011708    NA
-13.20000    86.90000    0.00000    0.00    1-HR    ALL    05011708    NA
153.39999    109.80000    0.38194    0.00    1-HR    ALL    05011708    NA
109.80000    -52.80000    324.14212    0.00    1-HR    ALL    05011708    NA
-52.80000    -9.20000    0.00000    0.00    1-HR    ALL    05011708    NA
-9.20000    153.39999    0.00000    0.00    1-HR    ALL    05011708    NA
50.30000    108.20000    14628.36040    0.00    1-HR    ALL    05011709    NA
108.20000    50.30000    5731.99023    0.00    1-HR    ALL    05011709    NA
50.30000    -7.60000    0.00000    0.00    1-HR    ALL    05011709    NA
-7.60000    50.30000    4.08363    0.00    1-HR    ALL    05011709    NA
86.90000    113.80000    13946.37990    0.00    1-HR    ALL    05011709    NA

```

113.80000	13.60000	26.19202	0.00	1-HR	ALL	05011709	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011709	NA
-13.20000	86.90000	2.55394	0.00	1-HR	ALL	05011709	NA
153.39999	109.80000	825.16394	0.00	1-HR	ALL	05011709	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011709	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011709	NA
-9.20000	153.39999	27.39477	0.00	1-HR	ALL	05011709	NA
50.30000	108.20000	4103.16260	0.00	1-HR	ALL	05011710	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011710	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011710	NA
-7.60000	50.30000	5316.60938	0.00	1-HR	ALL	05011710	NA
86.90000	113.80000	69.21862	0.00	1-HR	ALL	05011710	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011710	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011710	NA
-13.20000	86.90000	6222.23291	0.00	1-HR	ALL	05011710	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011710	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011710	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011710	NA
-9.20000	153.39999	1699.94299	0.00	1-HR	ALL	05011710	NA
50.30000	108.20000	3509.79272	0.00	1-HR	ALL	05011711	NA
108.20000	50.30000	0.46041	0.00	1-HR	ALL	05011711	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011711	NA
-7.60000	50.30000	720.56921	0.00	1-HR	ALL	05011711	NA
86.90000	113.80000	2192.27393	0.00	1-HR	ALL	05011711	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011711	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011711	NA
-13.20000	86.90000	817.76984	0.00	1-HR	ALL	05011711	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011711	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011711	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011711	NA
-9.20000	153.39999	1710.61963	0.00	1-HR	ALL	05011711	NA
50.30000	108.20000	3370.12671	0.00	1-HR	ALL	05011712	NA
108.20000	50.30000	105.08543	0.00	1-HR	ALL	05011712	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011712	NA
-7.60000	50.30000	304.13925	0.00	1-HR	ALL	05011712	NA
86.90000	113.80000	2626.51636	0.00	1-HR	ALL	05011712	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011712	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011712	NA
-13.20000	86.90000	313.10565	0.00	1-HR	ALL	05011712	NA
153.39999	109.80000	0.28327	0.00	1-HR	ALL	05011712	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011712	NA



-52.80000						05011712	NA
-9.20000						05011712	NA
50.30000	108.20000	153.39999	739.81152	0.00	1-HR ALL	05011713	NA
108.20000	108.20000	108.20000	3459.87109	0.00	1-HR ALL	05011713	NA
50.30000	50.30000	50.30000	352.75809	0.00	1-HR ALL	05011713	NA
-7.60000	-7.60000	-7.60000	0.00000	0.00	1-HR ALL	05011713	NA
50.30000	50.30000	50.30000	90.22132	0.00	1-HR ALL	05011713	NA
86.90000	113.80000	113.80000	3027.84888	0.00	1-HR ALL	05011713	NA
113.80000	13.60000	13.60000	0.00755	0.00	1-HR ALL	05011713	NA
13.60000	-13.20000	13.20000	0.00000	0.00	1-HR ALL	05011713	NA
-13.20000	86.90000	86.90000	84.65915	0.00	1-HR ALL	05011713	NA
153.39999	109.80000	109.80000	5.97281	0.00	1-HR ALL	05011713	NA
109.80000	-52.80000	-52.80000	0.00000	0.00	1-HR ALL	05011713	NA
-52.80000	-9.20000	-9.20000	0.00000	0.00	1-HR ALL	05011713	NA
-9.20000	153.39999	153.39999	296.34839	0.00	1-HR ALL	05011713	NA
50.30000	108.20000	108.20000	4152.47266	0.00	1-HR ALL	05011714	NA
108.20000	50.30000	50.30000	809.99213	0.00	1-HR ALL	05011714	NA
50.30000	-7.60000	-7.60000	0.00000	0.00	1-HR ALL	05011714	NA
-7.60000	50.30000	50.30000	27.74335	0.00	1-HR ALL	05011714	NA
86.90000	113.80000	113.80000	3780.05005	0.00	1-HR ALL	05011714	NA
113.80000	13.60000	13.60000	0.27363	0.00	1-HR ALL	05011714	NA
13.60000	-13.20000	-13.20000	0.00000	0.00	1-HR ALL	05011714	NA
-13.20000	86.90000	86.90000	23.36035	0.00	1-HR ALL	05011714	NA
153.39999	109.80000	109.80000	37.76583	0.00	1-HR ALL	05011714	NA
109.80000	-52.80000	-52.80000	0.00000	0.00	1-HR ALL	05011714	NA
-52.80000	-9.20000	-9.20000	0.00000	0.00	1-HR ALL	05011714	NA
-9.20000	153.39999	153.39999	116.32810	0.00	1-HR ALL	05011714	NA
50.30000	108.20000	108.20000	3851.00610	0.00	1-HR ALL	05011715	NA
108.20000	50.30000	50.30000	1511.62012	0.00	1-HR ALL	05011715	NA
50.30000	-7.60000	-7.60000	0.00000	0.00	1-HR ALL	05011715	NA
-7.60000	50.30000	50.30000	1.06092	0.00	1-HR ALL	05011715	NA
86.90000	113.80000	113.80000	3672.15649	0.00	1-HR ALL	05011715	NA
113.80000	13.60000	13.60000	6.95327	0.00	1-HR ALL	05011715	NA
13.60000	-13.20000	-13.20000	0.00000	0.00	1-HR ALL	05011715	NA
-13.20000	86.90000	86.90000	0.66267	0.00	1-HR ALL	05011715	NA
153.39999	109.80000	109.80000	218.23615	0.00	1-HR ALL	05011715	NA
109.80000	-52.80000	-52.80000	0.00000	0.00	1-HR ALL	05011715	NA
-52.80000	-9.20000	-9.20000	0.00000	0.00	1-HR ALL	05011715	NA
-9.20000	153.39999	153.39999	7.13416	0.00	1-HR ALL	05011715	NA
50.30000	108.20000	108.20000	3897.02588	0.00	1-HR ALL	05011716	NA
108.20000	50.30000	50.30000	2419.58032	0.00	1-HR ALL	05011716	NA
50.30000	-7.60000	-7.60000	0.00000	0.00	1-HR ALL	05011716	NA

-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011716	NA
86.90000	113.80000	3979.45093	0.00	1-HR	ALL	05011716	NA
113.80000	13.60000	58.42786	0.00	1-HR	ALL	05011716	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011716	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011716	NA
153.39999	109.80000	707.20050	0.00	1-HR	ALL	05011716	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011716	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011716	NA
-9.20000	153.39999	0.05258	0.00	1-HR	ALL	05011716	NA
50.30000	108.20000	3248.62573	0.00	1-HR	ALL	05011717	NA
108.20000	50.30000	2413.47266	0.00	1-HR	ALL	05011717	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011717	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011717	NA
86.90000	113.80000	3762.47900	0.00	1-HR	ALL	05011717	NA
113.80000	13.60000	30.71762	0.00	1-HR	ALL	05011717	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011717	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011717	NA
153.39999	109.80000	940.46753	0.00	1-HR	ALL	05011717	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011717	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011717	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011717	NA
50.30000	108.20000	3448.42041	0.00	1-HR	ALL	05011718	NA
108.20000	50.30000	2669.70654	0.00	1-HR	ALL	05011718	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011718	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011718	NA
86.90000	113.80000	4039.16504	0.00	1-HR	ALL	05011718	NA
113.80000	13.60000	43.64390	0.00	1-HR	ALL	05011718	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011718	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011718	NA
153.39999	109.80000	1110.30774	0.00	1-HR	ALL	05011718	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011718	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011718	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011718	NA
50.30000	108.20000	4666.29346	0.00	1-HR	ALL	05011719	NA
108.20000	50.30000	4090.77856	0.00	1-HR	ALL	05011719	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011719	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011719	NA
86.90000	113.80000	6609.67822	0.00	1-HR	ALL	05011719	NA
113.80000	13.60000	51.08777	0.00	1-HR	ALL	05011719	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011719	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011719	NA

153.39999	109.80000	2711.18408	0.00	1-HR	ALL	05011719	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011719	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011719	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011719	NA
50.30000	108.20000	4394.28418	0.00	1-HR	ALL	05011720	NA
108.20000	50.30000	4901.51416	0.00	1-HR	ALL	05011720	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011720	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011720	NA
86.90000	113.80000	6279.60352	0.00	1-HR	ALL	05011720	NA
113.80000	13.60000	272.88751	0.00	1-HR	ALL	05011720	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011720	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011720	NA
153.39999	109.80000	4000.07788	0.00	1-HR	ALL	05011720	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011720	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011720	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011720	NA
50.30000	108.20000	4278.23730	0.00	1-HR	ALL	05011721	NA
108.20000	50.30000	3621.35913	0.00	1-HR	ALL	05011721	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011721	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011721	NA
86.90000	113.80000	6017.85986	0.00	1-HR	ALL	05011721	NA
113.80000	13.60000	33.72594	0.00	1-HR	ALL	05011721	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011721	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011721	NA
153.39999	109.80000	2301.74683	0.00	1-HR	ALL	05011721	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011721	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011721	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011721	NA
50.30000	108.20000	7570.05664	0.00	1-HR	ALL	05011722	NA
108.20000	50.30000	3974.65308	0.00	1-HR	ALL	05011722	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011722	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011722	NA
86.90000	113.80000	8435.79199	0.00	1-HR	ALL	05011722	NA
113.80000	13.60000	0.07956	0.00	1-HR	ALL	05011722	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011722	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011722	NA
153.39999	109.80000	799.85168	0.00	1-HR	ALL	05011722	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011722	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011722	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011722	NA
50.30000	108.20000	2241.84448	0.00	1-HR	ALL	05011723	NA

108.20000	50.30000	10331.78130	0.00	1-HR	ALL	05011723	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011723	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011723	NA
86.90000	113.80000	2861.24536	0.00	1-HR	ALL	05011723	NA
113.80000	13.60000	5980.37451	0.00	1-HR	ALL	05011723	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011723	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011723	NA
153.39999	109.80000	6980.29053	0.00	1-HR	ALL	05011723	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011723	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011723	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011723	NA
50.30000	108.20000	7632.76904	0.00	1-HR	ALL	05011724	NA
108.20000	50.30000	395.05939	0.00	1-HR	ALL	05011724	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011724	NA
-7.60000	50.30000	0.60991	0.00	1-HR	ALL	05011724	NA
86.90000	113.80000	7672.47803	0.00	1-HR	ALL	05011724	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011724	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011724	NA
-13.20000	86.90000	0.43790	0.00	1-HR	ALL	05011724	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011724	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011724	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011724	NA
-9.20000	153.39999	33.77618	0.00	1-HR	ALL	05011724	NA
50.30000	108.20000	8012.31641	0.00	1-HR	ALL	05011801	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011801	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011801	NA
-7.60000	50.30000	1438.45203	0.00	1-HR	ALL	05011801	NA
86.90000	113.80000	5151.87207	0.00	1-HR	ALL	05011801	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011801	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011801	NA
-13.20000	86.90000	1813.57922	0.00	1-HR	ALL	05011801	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011801	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011801	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011801	NA
-9.20000	153.39999	5167.36084	0.00	1-HR	ALL	05011801	NA
50.30000	108.20000	5080.48633	0.00	1-HR	ALL	05011802	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011802	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011802	NA
-7.60000	50.30000	2716.12354	0.00	1-HR	ALL	05011802	NA
86.90000	113.80000	991.41364	0.00	1-HR	ALL	05011802	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011802	NA

13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011802	NA
-13.20000	86.90000	3782.53174	0.00	1-HR	ALL	05011802	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011802	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011802	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011802	NA
-9.20000	153.39999	3975.87109	0.00	1-HR	ALL	05011802	NA
50.30000	108.20000	14306.59470	0.00	1-HR	ALL	05011803	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011803	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011803	NA
-7.60000	50.30000	6983.88672	0.00	1-HR	ALL	05011803	NA
86.90000	113.80000	3238.15723	0.00	1-HR	ALL	05011803	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011803	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011803	NA
-13.20000	86.90000	9628.65723	0.00	1-HR	ALL	05011803	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011803	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011803	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011803	NA
-9.20000	153.39999	10819.48540	0.00	1-HR	ALL	05011803	NA
50.30000	108.20000	9065.32227	0.00	1-HR	ALL	05011804	NA
108.20000	50.30000	11322.13090	0.00	1-HR	ALL	05011804	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011804	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011804	NA
86.90000	113.80000	12956.13090	0.00	1-HR	ALL	05011804	NA
113.80000	13.60000	944.75330	0.00	1-HR	ALL	05011804	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011804	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011804	NA
153.39999	109.80000	9650.35547	0.00	1-HR	ALL	05011804	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011804	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011804	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011804	NA
50.30000	108.20000	0.00000	0.00	1-HR	ALL	05011805	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011805	NA
50.30000	-7.60000	16255.61620	0.00	1-HR	ALL	05011805	NA
-7.60000	50.30000	16033.38090	0.00	1-HR	ALL	05011805	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011805	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011805	NA
13.60000	-13.20000	23135.55270	0.00	1-HR	ALL	05011805	NA
-13.20000	86.90000	512.01227	0.00	1-HR	ALL	05011805	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011805	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011805	NA
-52.80000	-9.20000	12041.97360	0.00	1-HR	ALL	05011805	NA

-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011805	NA
50.30000	108.20000	0.00000	0.00	1-HR	ALL	05011806	NA
108.20000	50.30000	3.03459	0.00	1-HR	ALL	05011806	NA
50.30000	-7.60000	23109.52540	0.00	1-HR	ALL	05011806	NA
-7.60000	50.30000	975.99878	0.00	1-HR	ALL	05011806	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011806	NA
113.80000	13.60000	2.36464	0.00	1-HR	ALL	05011806	NA
13.60000	-13.20000	23202.58010	0.00	1-HR	ALL	05011806	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011806	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011806	NA
109.80000	-52.80000	152.98843	0.00	1-HR	ALL	05011806	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011806	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011806	NA
50.30000	108.20000	2.75036	0.00	1-HR	ALL	05011807	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011807	NA
50.30000	-7.60000	3128.46045	0.00	1-HR	ALL	05011807	NA
-7.60000	50.30000	16130.18160	0.00	1-HR	ALL	05011807	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011807	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011807	NA
13.60000	-13.20000	3546.95288	0.00	1-HR	ALL	05011807	NA
-13.20000	86.90000	10341.76070	0.00	1-HR	ALL	05011807	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011807	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011807	NA
-52.80000	-9.20000	7685.14941	0.00	1-HR	ALL	05011807	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011807	NA
50.30000	108.20000	8891.70313	0.00	1-HR	ALL	05011808	NA
108.20000	50.30000	5600.00830	0.00	1-HR	ALL	05011808	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011808	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011808	NA
86.90000	113.80000	9105.36719	0.00	1-HR	ALL	05011808	NA
113.80000	13.60000	141.89081	0.00	1-HR	ALL	05011808	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011808	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011808	NA
153.39999	109.80000	1668.64197	0.00	1-HR	ALL	05011808	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011808	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011808	NA
-9.20000	153.39999	0.03557	0.00	1-HR	ALL	05011808	NA
50.30000	108.20000	15096.69430	0.00	1-HR	ALL	05011809	NA
108.20000	50.30000	488.73810	0.00	1-HR	ALL	05011809	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011809	NA
-7.60000	50.30000	1326.32068	0.00	1-HR	ALL	05011809	NA

86.90000	113.80000	11819.41890	0.00	1-HR	ALL	05011809	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011809	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011809	NA
-13.20000	86.90000	1362.98853	0.00	1-HR	ALL	05011809	NA
153.39999	109.80000	1.40470	0.00	1-HR	ALL	05011809	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011809	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011809	NA
-9.20000	153.39999	3251.41553	0.00	1-HR	ALL	05011809	NA
50.30000	108.20000	6982.33447	0.00	1-HR	ALL	05011810	NA
108.20000	50.30000	1147.59021	0.00	1-HR	ALL	05011810	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011810	NA
-7.60000	50.30000	2.50944	0.00	1-HR	ALL	05011810	NA
86.90000	113.80000	6682.74316	0.00	1-HR	ALL	05011810	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011810	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011810	NA
-13.20000	86.90000	1.84840	0.00	1-HR	ALL	05011810	NA
153.39999	109.80000	7.07222	0.00	1-HR	ALL	05011810	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011810	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011810	NA
-9.20000	153.39999	34.50471	0.00	1-HR	ALL	05011810	NA
50.30000	108.20000	4183.37988	0.00	1-HR	ALL	05011811	NA
108.20000	50.30000	2164.94629	0.00	1-HR	ALL	05011811	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011811	NA
-7.60000	50.30000	0.08352	0.00	1-HR	ALL	05011811	NA
86.90000	113.80000	4145.72998	0.00	1-HR	ALL	05011811	NA
113.80000	13.60000	27.54435	0.00	1-HR	ALL	05011811	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011811	NA
-13.20000	86.90000	0.02951	0.00	1-HR	ALL	05011811	NA
153.39999	109.80000	485.28958	0.00	1-HR	ALL	05011811	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011811	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011811	NA
-9.20000	153.39999	0.85724	0.00	1-HR	ALL	05011811	NA
50.30000	108.20000	4201.78320	0.00	1-HR	ALL	05011812	NA
108.20000	50.30000	2731.44604	0.00	1-HR	ALL	05011812	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011812	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011812	NA
86.90000	113.80000	4326.95166	0.00	1-HR	ALL	05011812	NA
113.80000	13.60000	76.80266	0.00	1-HR	ALL	05011812	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011812	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011812	NA
153.39999	109.80000	847.84845	0.00	1-HR	ALL	05011812	NA

109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011812	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011812	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011812	NA
50.30000	108.20000	2986.26343	0.00	1-HR	ALL	05011813	NA
108.20000	50.30000	2427.93457	0.00	1-HR	ALL	05011813	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011813	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011813	NA
86.90000	113.80000	3206.18164	0.00	1-HR	ALL	05011813	NA
113.80000	13.60000	136.99361	0.00	1-HR	ALL	05011813	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011813	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011813	NA
153.39999	109.80000	976.21185	0.00	1-HR	ALL	05011813	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011813	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011813	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011813	NA
50.30000	108.20000	3795.51416	0.00	1-HR	ALL	05011814	NA
108.20000	50.30000	2021.73364	0.00	1-HR	ALL	05011814	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011814	NA
-7.60000	50.30000	0.04674	0.00	1-HR	ALL	05011814	NA
86.90000	113.80000	3776.96753	0.00	1-HR	ALL	05011814	NA
113.80000	13.60000	28.58186	0.00	1-HR	ALL	05011814	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011814	NA
-13.20000	86.90000	0.00772	0.00	1-HR	ALL	05011814	NA
153.39999	109.80000	473.58878	0.00	1-HR	ALL	05011814	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011814	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011814	NA
-9.20000	153.39999	0.55706	0.00	1-HR	ALL	05011814	NA
50.30000	108.20000	3739.96509	0.00	1-HR	ALL	05011815	NA
108.20000	50.30000	2044.21033	0.00	1-HR	ALL	05011815	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011815	NA
-7.60000	50.30000	0.02770	0.00	1-HR	ALL	05011815	NA
86.90000	113.80000	3735.68262	0.00	1-HR	ALL	05011815	NA
113.80000	13.60000	31.66340	0.00	1-HR	ALL	05011815	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011815	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011815	NA
153.39999	109.80000	497.82220	0.00	1-HR	ALL	05011815	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011815	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011815	NA
-9.20000	153.39999	0.39288	0.00	1-HR	ALL	05011815	NA
50.30000	108.20000	3214.57471	0.00	1-HR	ALL	05011816	NA
108.20000	50.30000	1319.67200	0.00	1-HR	ALL	05011816	NA



50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011816	NA
-7.60000	50.30000	0.61817	0.00	1-HR	ALL	05011816	NA
86.90000	113.80000	3080.35596	0.00	1-HR	ALL	05011816	NA
113.80000	13.60000	7.18400	0.00	1-HR	ALL	05011816	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011816	NA
-13.20000	86.90000	0.38186	0.00	1-HR	ALL	05011816	NA
153.39999	109.80000	205.09583	0.00	1-HR	ALL	05011816	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011816	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011816	NA
-9.20000	153.39999	4.43464	0.00	1-HR	ALL	05011816	NA
50.30000	108.20000	3308.96777	0.00	1-HR	ALL	05011817	NA
108.20000	50.30000	2050.64697	0.00	1-HR	ALL	05011817	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011817	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011817	NA
86.90000	113.80000	3610.93799	0.00	1-HR	ALL	05011817	NA
113.80000	13.60000	7.54231	0.00	1-HR	ALL	05011817	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011817	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011817	NA
153.39999	109.80000	558.58417	0.00	1-HR	ALL	05011817	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011817	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011817	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011817	NA
50.30000	108.20000	3695.24243	0.00	1-HR	ALL	05011818	NA
108.20000	50.30000	2271.88550	0.00	1-HR	ALL	05011818	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011818	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011818	NA
86.90000	113.80000	4021.55103	0.00	1-HR	ALL	05011818	NA
113.80000	13.60000	7.86788	0.00	1-HR	ALL	05011818	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011818	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011818	NA
153.39999	109.80000	607.57361	0.00	1-HR	ALL	05011818	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011818	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011818	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011818	NA
50.30000	108.20000	4621.58057	0.00	1-HR	ALL	05011819	NA
108.20000	50.30000	3303.16260	0.00	1-HR	ALL	05011819	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011819	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011819	NA
86.90000	113.80000	6091.30273	0.00	1-HR	ALL	05011819	NA
113.80000	13.60000	6.25034	0.00	1-HR	ALL	05011819	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011819	NA

-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011819	NA
153.39999	109.80000	1651.98376	0.00	1-HR	ALL	05011819	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011819	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011819	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011819	NA
50.30000	108.20000	5339.24512	0.00	1-HR	ALL	05011820	NA
108.20000	50.30000	2272.99829	0.00	1-HR	ALL	05011820	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011820	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011820	NA
86.90000	113.80000	5500.63184	0.00	1-HR	ALL	05011820	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011820	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011820	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011820	NA
153.39999	109.80000	137.09322	0.00	1-HR	ALL	05011820	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011820	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011820	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011820	NA
50.30000	108.20000	5543.12256	0.00	1-HR	ALL	05011821	NA
108.20000	50.30000	2507.12573	0.00	1-HR	ALL	05011821	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011821	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011821	NA
86.90000	113.80000	5797.30762	0.00	1-HR	ALL	05011821	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011821	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011821	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011821	NA
153.39999	109.80000	220.67245	0.00	1-HR	ALL	05011821	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011821	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011821	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011821	NA
50.30000	108.20000	9366.22559	0.00	1-HR	ALL	05011822	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011822	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011822	NA
-7.60000	50.30000	3114.06104	0.00	1-HR	ALL	05011822	NA
86.90000	113.80000	3805.42578	0.00	1-HR	ALL	05011822	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011822	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011822	NA
-13.20000	86.90000	4097.28271	0.00	1-HR	ALL	05011822	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011822	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011822	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011822	NA
-9.20000	153.39999	6709.72168	0.00	1-HR	ALL	05011822	NA

50.30000	108.20000	23813.98630	0.00	1-HR	ALL	05011823	NA
108.20000	50.30000	8409.62402	0.00	1-HR	ALL	05011823	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011823	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011823	NA
86.90000	113.80000	23962.30660	0.00	1-HR	ALL	05011823	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011823	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011823	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011823	NA
153.39999	109.80000	122.52599	0.00	1-HR	ALL	05011823	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011823	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011823	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011823	NA
50.30000	108.20000	20971.50000	0.00	1-HR	ALL	05011824	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011824	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011824	NA
-7.60000	50.30000	9431.33691	0.00	1-HR	ALL	05011824	NA
86.90000	113.80000	5447.84619	0.00	1-HR	ALL	05011824	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011824	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011824	NA
-13.20000	86.90000	12871.97070	0.00	1-HR	ALL	05011824	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011824	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011824	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011824	NA
-9.20000	153.39999	15500.31840	0.00	1-HR	ALL	05011824	NA
50.30000	108.20000	0.02112	0.00	1-HR	ALL	05011901	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011901	NA
50.30000	-7.60000	632.43475	0.00	1-HR	ALL	05011901	NA
-7.60000	50.30000	5763.33057	0.00	1-HR	ALL	05011901	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011901	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011901	NA
13.60000	-13.20000	775.69086	0.00	1-HR	ALL	05011901	NA
-13.20000	86.90000	4452.09180	0.00	1-HR	ALL	05011901	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011901	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011901	NA
-52.80000	-9.20000	3166.91968	0.00	1-HR	ALL	05011901	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011901	NA
50.30000	108.20000	4.18032	0.00	1-HR	ALL	05011902	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011902	NA
50.30000	-7.60000	93.94485	0.00	1-HR	ALL	05011902	NA
-7.60000	50.30000	5349.39453	0.00	1-HR	ALL	05011902	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011902	NA

113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011902	NA
13.60000	-13.20000	102.26109	0.00	1-HR	ALL	05011902	NA
-13.20000	86.90000	5174.63037	0.00	1-HR	ALL	05011902	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011902	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011902	NA
-52.80000	-9.20000	1137.55066	0.00	1-HR	ALL	05011902	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011902	NA
50.30000	108.20000	1438.55444	0.00	1-HR	ALL	05011903	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011903	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011903	NA
-7.60000	50.30000	7884.93848	0.00	1-HR	ALL	05011903	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011903	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011903	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011903	NA
-13.20000	86.90000	7906.67041	0.00	1-HR	ALL	05011903	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011903	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011903	NA
-52.80000	-9.20000	0.36582	0.00	1-HR	ALL	05011903	NA
-9.20000	153.39999	0.49752	0.00	1-HR	ALL	05011903	NA
50.30000	108.20000	7845.98340	0.00	1-HR	ALL	05011904	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011904	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011904	NA
-7.60000	50.30000	9703.58691	0.00	1-HR	ALL	05011904	NA
86.90000	113.80000	52.26781	0.00	1-HR	ALL	05011904	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011904	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011904	NA
-13.20000	86.90000	13488.95900	0.00	1-HR	ALL	05011904	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011904	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011904	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011904	NA
-9.20000	153.39999	4696.46094	0.00	1-HR	ALL	05011904	NA
50.30000	108.20000	0.00000	0.00	1-HR	ALL	05011905	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011905	NA
50.30000	-7.60000	13679.16890	0.00	1-HR	ALL	05011905	NA
-7.60000	50.30000	19234.15630	0.00	1-HR	ALL	05011905	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011905	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011905	NA
13.60000	-13.20000	19502.36330	0.00	1-HR	ALL	05011905	NA
-13.20000	86.90000	2245.77344	0.00	1-HR	ALL	05011905	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011905	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011905	NA

-52.80000	16516.17580	0.00	1-HR	ALL	05011905	NA
-9.20000	0.00000	0.00	1-HR	ALL	05011905	NA
50.30000	28.77986	0.00	1-HR	ALL	05011906	NA
108.20000	0.00000	0.00	1-HR	ALL	05011906	NA
50.30000	293.15283	0.00	1-HR	ALL	05011906	NA
-7.60000	22835.77340	0.00	1-HR	ALL	05011906	NA
50.30000	0.00000	0.00	1-HR	ALL	05011906	NA
86.90000	0.00000	0.00	1-HR	ALL	05011906	NA
113.80000	0.00000	0.00	1-HR	ALL	05011906	NA
13.60000	0.00000	0.00	1-HR	ALL	05011906	NA
13.60000	313.00070	0.00	1-HR	ALL	05011906	NA
-13.20000	22360.65430	0.00	1-HR	ALL	05011906	NA
153.39999	0.00000	0.00	1-HR	ALL	05011906	NA
109.80000	0.00000	0.00	1-HR	ALL	05011906	NA
-52.80000	0.00000	0.00	1-HR	ALL	05011906	NA
-52.80000	4001.75684	0.00	1-HR	ALL	05011906	NA
-9.20000	0.00000	0.00	1-HR	ALL	05011906	NA
153.39999	0.00000	0.00	1-HR	ALL	05011906	NA
108.20000	0.00000	0.00	1-HR	ALL	05011907	NA
50.30000	10022.82620	0.00	1-HR	ALL	05011907	NA
108.20000	6743.59326	0.00	1-HR	ALL	05011907	NA
50.30000	0.00000	0.00	1-HR	ALL	05011907	NA
-7.60000	0.00000	0.00	1-HR	ALL	05011907	NA
86.90000	0.00000	0.00	1-HR	ALL	05011907	NA
113.80000	0.00000	0.00	1-HR	ALL	05011907	NA
113.80000	11251.75980	0.00	1-HR	ALL	05011907	NA
13.60000	44.82225	0.00	1-HR	ALL	05011907	NA
-13.20000	0.00000	0.00	1-HR	ALL	05011907	NA
86.90000	0.00000	0.00	1-HR	ALL	05011907	NA
153.39999	0.00000	0.00	1-HR	ALL	05011907	NA
109.80000	2192.81128	0.00	1-HR	ALL	05011907	NA
-52.80000	0.00000	0.00	1-HR	ALL	05011907	NA
-9.20000	0.00000	0.00	1-HR	ALL	05011907	NA
153.39999	0.00000	0.00	1-HR	ALL	05011907	NA
108.20000	14554.66600	0.00	1-HR	ALL	05011908	NA
50.30000	2.90133	0.00	1-HR	ALL	05011908	NA
-7.60000	0.00000	0.00	1-HR	ALL	05011908	NA
50.30000	5953.88086	0.00	1-HR	ALL	05011908	NA
86.90000	5754.39209	0.00	1-HR	ALL	05011908	NA
113.80000	0.00000	0.00	1-HR	ALL	05011908	NA
13.60000	0.00000	0.00	1-HR	ALL	05011908	NA
-13.20000	0.00000	0.00	1-HR	ALL	05011908	NA
86.90000	6589.86816	0.00	1-HR	ALL	05011908	NA
109.80000	0.00000	0.00	1-HR	ALL	05011908	NA
-52.80000	0.00000	0.00	1-HR	ALL	05011908	NA
-9.20000	0.00000	0.00	1-HR	ALL	05011908	NA
153.39999	0.00000	0.00	1-HR	ALL	05011908	NA
109.80000	0.00000	0.00	1-HR	ALL	05011908	NA
-52.80000	0.00000	0.00	1-HR	ALL	05011908	NA
-9.20000	7265.24707	0.00	1-HR	ALL	05011908	NA
50.30000	9602.65527	0.00	1-HR	ALL	05011909	NA
108.20000	52.93159	0.00	1-HR	ALL	05011909	NA
50.30000	0.00000	0.00	1-HR	ALL	05011909	NA
-7.60000	0.00000	0.00	1-HR	ALL	05011909	NA

-7.60000	50.30000	2000.36169	0.00	1-HR	ALL	05011909	NA
86.90000	113.80000	5933.45117	0.00	1-HR	ALL	05011909	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011909	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011909	NA
-13.20000	86.90000	2148.11572	0.00	1-HR	ALL	05011909	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011909	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011909	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011909	NA
-9.20000	153.39999	3574.43823	0.00	1-HR	ALL	05011909	NA
50.30000	108.20000	0.00000	0.00	1-HR	ALL	05011910	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011910	NA
50.30000	-7.60000	3201.18896	0.00	1-HR	ALL	05011910	NA
-7.60000	50.30000	5959.68799	0.00	1-HR	ALL	05011910	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011910	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011910	NA
13.60000	-13.20000	3812.81152	0.00	1-HR	ALL	05011910	NA
-13.20000	86.90000	1558.49109	0.00	1-HR	ALL	05011910	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011910	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011910	NA
-52.80000	-9.20000	3686.43652	0.00	1-HR	ALL	05011910	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011910	NA
50.30000	108.20000	239.44276	0.00	1-HR	ALL	05011911	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011911	NA
50.30000	-7.60000	154.53873	0.00	1-HR	ALL	05011911	NA
-7.60000	50.30000	3491.43188	0.00	1-HR	ALL	05011911	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011911	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011911	NA
13.60000	-13.20000	151.37823	0.00	1-HR	ALL	05011911	NA
-13.20000	86.90000	2956.88745	0.00	1-HR	ALL	05011911	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011911	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011911	NA
-52.80000	-9.20000	452.35535	0.00	1-HR	ALL	05011911	NA
-9.20000	153.39999	2.22566	0.00	1-HR	ALL	05011911	NA
50.30000	108.20000	86.49540	0.00	1-HR	ALL	05011912	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011912	NA
50.30000	-7.60000	478.50842	0.00	1-HR	ALL	05011912	NA
-7.60000	50.30000	4123.47998	0.00	1-HR	ALL	05011912	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011912	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011912	NA
13.60000	-13.20000	502.27985	0.00	1-HR	ALL	05011912	NA
-13.20000	86.90000	3058.46143	0.00	1-HR	ALL	05011912	NA

153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011912	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011912	NA
-52.80000	-9.20000	1076.26245	0.00	1-HR	ALL	05011912	NA
-9.20000	153.39999	0.12136	0.00	1-HR	ALL	05011912	NA
50.30000	108.20000	88.58292	0.00	1-HR	ALL	05011913	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011913	NA
50.30000	-7.60000	619.35120	0.00	1-HR	ALL	05011913	NA
-7.60000	50.30000	4922.81885	0.00	1-HR	ALL	05011913	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05011913	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011913	NA
13.60000	-13.20000	655.26874	0.00	1-HR	ALL	05011913	NA
-13.20000	86.90000	3580.44043	0.00	1-HR	ALL	05011913	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011913	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011913	NA
-52.80000	-9.20000	1358.10107	0.00	1-HR	ALL	05011913	NA
-9.20000	153.39999	0.09380	0.00	1-HR	ALL	05011913	NA
153.39999	108.20000	3817.97437	0.00	1-HR	ALL	05011914	NA
50.30000	50.30000	0.00000	0.00	1-HR	ALL	05011914	NA
108.20000	-7.60000	0.00000	0.00	1-HR	ALL	05011914	NA
50.30000	50.30000	4614.18848	0.00	1-HR	ALL	05011914	NA
-7.60000	113.80000	232.38158	0.00	1-HR	ALL	05011914	NA
86.90000	13.60000	0.00000	0.00	1-HR	ALL	05011914	NA
113.80000	-13.20000	0.00000	0.00	1-HR	ALL	05011914	NA
13.60000	86.90000	4968.23926	0.00	1-HR	ALL	05011914	NA
-13.20000	153.39999	0.00000	0.00	1-HR	ALL	05011914	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011914	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011914	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011914	NA
-9.20000	153.39999	1559.79822	0.00	1-HR	ALL	05011914	NA
153.39999	108.20000	7768.44189	0.00	1-HR	ALL	05011915	NA
50.30000	50.30000	2449.35181	0.00	1-HR	ALL	05011915	NA
108.20000	-7.60000	0.00000	0.00	1-HR	ALL	05011915	NA
50.30000	50.30000	81.80206	0.00	1-HR	ALL	05011915	NA
-7.60000	113.80000	7026.96387	0.00	1-HR	ALL	05011915	NA
86.90000	13.60000	34.34710	0.00	1-HR	ALL	05011915	NA
113.80000	-13.20000	0.00000	0.00	1-HR	ALL	05011915	NA
13.60000	86.90000	65.80762	0.00	1-HR	ALL	05011915	NA
-13.20000	109.80000	390.15631	0.00	1-HR	ALL	05011915	NA
153.39999	-52.80000	0.00000	0.00	1-HR	ALL	05011915	NA
109.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011915	NA
-52.80000	-9.20000	216.62015	0.00	1-HR	ALL	05011915	NA
-9.20000	153.39999	3678.51587	0.00	1-HR	ALL	05011916	NA
50.30000	108.20000		0.00	1-HR	ALL	05011916	NA

108.20000	50.30000	4069.17310	0.00	1-HR	ALL	05011916	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011916	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011916	NA
86.90000	113.80000	4093.12549	0.00	1-HR	ALL	05011916	NA
113.80000	13.60000	497.22183	0.00	1-HR	ALL	05011916	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011916	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011916	NA
153.39999	109.80000	2035.32886	0.00	1-HR	ALL	05011916	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011916	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011916	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011916	NA
50.30000	108.20000	9062.29590	0.00	1-HR	ALL	05011917	NA
108.20000	50.30000	4367.65576	0.00	1-HR	ALL	05011917	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011917	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011917	NA
86.90000	113.80000	9180.67480	0.00	1-HR	ALL	05011917	NA
113.80000	13.60000	2.06793	0.00	1-HR	ALL	05011917	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011917	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011917	NA
153.39999	109.80000	599.11395	0.00	1-HR	ALL	05011917	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011917	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011917	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011917	NA
50.30000	108.20000	142.56970	0.00	1-HR	ALL	05011918	NA
108.20000	50.30000	13765.32230	0.00	1-HR	ALL	05011918	NA
50.30000	-7.60000	518.72906	0.00	1-HR	ALL	05011918	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011918	NA
86.90000	113.80000	134.46463	0.00	1-HR	ALL	05011918	NA
113.80000	13.60000	12928.54390	0.00	1-HR	ALL	05011918	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011918	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011918	NA
153.39999	109.80000	1014.06012	0.00	1-HR	ALL	05011918	NA
109.80000	-52.80000	0.11709	0.00	1-HR	ALL	05011918	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011918	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011918	NA
50.30000	108.20000	6082.01123	0.00	1-HR	ALL	05011919	NA
108.20000	50.30000	2825.11426	0.00	1-HR	ALL	05011919	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011919	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011919	NA
86.90000	113.80000	6411.74268	0.00	1-HR	ALL	05011919	NA
113.80000	13.60000	0.00204	0.00	1-HR	ALL	05011919	NA



13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011919	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011919	NA
153.39999	109.80000	297.84595	0.00	1-HR	ALL	05011919	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011919	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011919	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011919	NA
50.30000	108.20000	5172.41309	0.00	1-HR	ALL	05011920	NA
108.20000	50.30000	54.66577	0.00	1-HR	ALL	05011920	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011920	NA
-7.60000	50.30000	8.33793	0.00	1-HR	ALL	05011920	NA
86.90000	113.80000	5174.10449	0.00	1-HR	ALL	05011920	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011920	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011920	NA
-13.20000	86.90000	7.57497	0.00	1-HR	ALL	05011920	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011920	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011920	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011920	NA
-9.20000	153.39999	219.02795	0.00	1-HR	ALL	05011920	NA
50.30000	108.20000	5408.25195	0.00	1-HR	ALL	05011921	NA
108.20000	50.30000	2554.30151	0.00	1-HR	ALL	05011921	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011921	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011921	NA
86.90000	113.80000	5737.75146	0.00	1-HR	ALL	05011921	NA
113.80000	13.60000	0.00326	0.00	1-HR	ALL	05011921	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011921	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011921	NA
153.39999	109.80000	297.55072	0.00	1-HR	ALL	05011921	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011921	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011921	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011921	NA
50.30000	108.20000	10257.82810	0.00	1-HR	ALL	05011922	NA
108.20000	50.30000	3341.95337	0.00	1-HR	ALL	05011922	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011922	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011922	NA
86.90000	113.80000	10300.29490	0.00	1-HR	ALL	05011922	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011922	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011922	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011922	NA
153.39999	109.80000	27.36776	0.00	1-HR	ALL	05011922	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011922	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011922	NA

-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011922	NA
50.30000	108.20000	7723.86133	0.00	1-HR	ALL	05011923	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05011923	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011923	NA
-7.60000	50.30000	2433.98535	0.00	1-HR	ALL	05011923	NA
86.90000	113.80000	3332.55591	0.00	1-HR	ALL	05011923	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011923	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011923	NA
-13.20000	86.90000	3188.81470	0.00	1-HR	ALL	05011923	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05011923	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011923	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011923	NA
-9.20000	153.39999	5511.27539	0.00	1-HR	ALL	05011923	NA
50.30000	108.20000	12470.27250	0.00	1-HR	ALL	05011924	NA
108.20000	50.30000	5280.29736	0.00	1-HR	ALL	05011924	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05011924	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05011924	NA
86.90000	113.80000	12831.67290	0.00	1-HR	ALL	05011924	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05011924	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05011924	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05011924	NA
86.90000	109.80000	305.79611	0.00	1-HR	ALL	05011924	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05011924	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05011924	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05011924	NA
153.39999	108.20000	6248.19336	0.00	1-HR	ALL	05012001	NA
108.20000	50.30000	12442.57620	0.00	1-HR	ALL	05012001	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05012001	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05012001	NA
86.90000	113.80000	8642.91309	0.00	1-HR	ALL	05012001	NA
113.80000	13.60000	2648.49146	0.00	1-HR	ALL	05012001	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05012001	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05012001	NA
86.90000	109.80000	9502.71191	0.00	1-HR	ALL	05012001	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05012001	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05012001	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05012001	NA
153.39999	108.20000	0.00000	0.00	1-HR	ALL	05012002	NA
108.20000	50.30000	11704.80370	0.00	1-HR	ALL	05012002	NA
50.30000	-7.60000	12024.59570	0.00	1-HR	ALL	05012002	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05012002	NA
50.30000	-7.60000	0.00000	0.00	1-HR	ALL	05012002	NA

86.90000	113.80000	0.00000	0.00	1-HR	ALL	05012002	NA
113.80000	13.60000	16699.25200	0.00	1-HR	ALL	05012002	NA
13.60000	-13.20000	456.00320	0.00	1-HR	ALL	05012002	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05012002	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05012002	NA
109.80000	-52.80000	9318.18848	0.00	1-HR	ALL	05012002	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05012002	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05012002	NA
50.30000	108.20000	0.00000	0.00	1-HR	ALL	05012003	NA
108.20000	50.30000	7503.31299	0.00	1-HR	ALL	05012003	NA
50.30000	-7.60000	12800.08690	0.00	1-HR	ALL	05012003	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05012003	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05012003	NA
113.80000	13.60000	10568.38870	0.00	1-HR	ALL	05012003	NA
13.60000	-13.20000	2105.64404	0.00	1-HR	ALL	05012003	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05012003	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05012003	NA
109.80000	-52.80000	10414.54100	0.00	1-HR	ALL	05012003	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05012003	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05012003	NA
50.30000	108.20000	0.00000	0.00	1-HR	ALL	05012004	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05012004	NA
50.30000	-7.60000	14721.52250	0.00	1-HR	ALL	05012004	NA
-7.60000	50.30000	17743.75780	0.00	1-HR	ALL	05012004	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05012004	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05012004	NA
13.60000	-13.20000	21065.96480	0.00	1-HR	ALL	05012004	NA
-13.20000	86.90000	1365.20251	0.00	1-HR	ALL	05012004	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05012004	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05012004	NA
-52.80000	-9.20000	14974.45900	0.00	1-HR	ALL	05012004	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05012004	NA
50.30000	108.20000	0.00000	0.00	1-HR	ALL	05012005	NA
108.20000	50.30000	0.00000	0.00	1-HR	ALL	05012005	NA
50.30000	-7.60000	11836.40140	0.00	1-HR	ALL	05012005	NA
-7.60000	50.30000	22083.18160	0.00	1-HR	ALL	05012005	NA
86.90000	113.80000	0.00000	0.00	1-HR	ALL	05012005	NA
113.80000	13.60000	0.00000	0.00	1-HR	ALL	05012005	NA
13.60000	-13.20000	16506.39060	0.00	1-HR	ALL	05012005	NA
-13.20000	86.90000	4291.47217	0.00	1-HR	ALL	05012005	NA
153.39999	109.80000	0.00000	0.00	1-HR	ALL	05012005	NA

109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05012005	NA
-52.80000	-9.20000	17299.85350	0.00	1-HR	ALL	05012005	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05012005	NA
50.30000	108.20000	16.30497	0.00	1-HR	ALL	05012006	NA
108.20000	50.30000	16389.21290	0.00	1-HR	ALL	05012006	NA
50.30000	-7.60000	242.73599	0.00	1-HR	ALL	05012006	NA
-7.60000	50.30000	0.00000	0.00	1-HR	ALL	05012006	NA
86.90000	113.80000	14.51314	0.00	1-HR	ALL	05012006	NA
113.80000	13.60000	16428.52930	0.00	1-HR	ALL	05012006	NA
13.60000	-13.20000	0.00000	0.00	1-HR	ALL	05012006	NA
-13.20000	86.90000	0.00000	0.00	1-HR	ALL	05012006	NA
153.39999	109.80000	489.76959	0.00	1-HR	ALL	05012006	NA
109.80000	-52.80000	0.00000	0.00	1-HR	ALL	05012006	NA
-52.80000	-9.20000	0.00000	0.00	1-HR	ALL	05012006	NA
-9.20000	153.39999	0.00000	0.00	1-HR	ALL	05012006	NA

**Data Evaluation Record on the field volatility of dimethyl disulfide**

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**Attachment 5: Indirect Method Flux Rate Back Calculation**

**Data Evaluation Record on the field volatility of dimethyl disulfide**

PMRA Submission Number {.....}

EPA MRID Number 47052821

Table 5-1. Measured DMDS air concentrations at samplers around field ( $\mu\text{g}/\text{m}^3$ ) for sample periods 1 - 9.

Sample Periods	1	2	3	4	5	6	7	8	9
Hours	0-7	7-11	11-17	17-23	24-5	5-11	11-17	17-23	23-5
DTG	8/17, 07:00 - 14:00	8/17, 14:00 - 18:00	8/17, 18:00 - 24:00	8/18, 0:00 - 06:00	8/18, 06:00 - 12:00	8/18, 12:00 - 18:00	8/18, 18:00 - 24:00	8/19, 0:00 - 06:00	8/19, 06:00 - 12:00
Sampler									
1A	1399.024	5996.632	4268.265	2981.898	522.067	216.175	314.079	71.547	123.723
1B	358.359	3673.986	4414.352	2683.664	334.681	114.871	275.269	73.188	149.107
1C	10.326	8.252	352.255	2697.742	1224.227	1.755	213.241	89.923	109.349
1D	12.066	39.942	145.14	2417.559	514.781	8.466	26.259	208.06	86.909
2A	1593.475	6496.938	7823.001	3407.6475	424.7035	347.441	542.631	76.268	95.798
2B	8.831	125.984	1598.108	3059.698	459.277	14.558	216.01	219.263	173.549
2C	2.359	ND	2.957	1293.368	922.609	ND	226.337	162.105	40.838
2D	35.828	46.712	473.42	2443.246	482.385	11.234	64.707	134.444	61.692
3A	67.087	844.191	3296.191	2299.802	91.971	48.173	113.07	57.098	119.37
3B	5.155	3.827	481.672	2616.755	230.459	ND	174.17	204.453	108.332
3C	ND	2.98	3.556	136.52	272.333	ND	143.417	102.465	11.241
3D	105.602	83.446	2238.101	2366.145	194.167	8.785	25.891	13.38	4.274

<sup>1</sup> ND – not detected.

**Data Evaluation Record on the field volatility of dimethyl disulfide**

PMRA Submission Number {.....}

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Table 5-1. Measured DMDS air concentrations at samplers around field ( $\mu\text{g}/\text{m}^3$ ) for sample periods 10 - 12.

Sample Periods	10	11	12
Hours	6-12	12-18	18-24
DTG	8/19, 12:00 - 18:00	8/19, 18:00 - 24:00	8/20, 0:00 - 06:00
Sampler			
1A	19.58	75.737	31.841
1B	14.705	36.569	192.305
1C	35.045	4.453	180.924
1D	27.863	4.247	108.804
2A	10.3135	108.756	125.7775
2B	10.459	10.732	176.44
2C	22.588	ND	139.419
2D	14.235	8.608	39.882
3A	1.999	13.401	109.498
3B	4.59	ND	26.637
3C	2.882	ND	67.367
3D	ND	21.83	54.508

ND – not detected.

**Data Evaluation Record on the field volatility of dimethyl disulfide**

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Table 5-2. Regression statistics and flux rate estimates (sampling periods 1 – 5).

Period	1		2		3		4		5	
	Model	Measured	Model	Measured	Model	Measured	Model	Measured	Model	Measured
1A	4746.255	1399.024	3611.27	5996.632	5130.581	4268.265	6077.453	2981.898	6559.774	522.067
1B	3081.703	358.359	2253.595	3673.986	4552.524	4414.352	1887.528	2683.664	2022.121	334.681
1C	770.5819	10.326	0	8.252	0	352.255	6560.857	2697.742	521.4101	1224.227
1D	923.338	12.066	0.26523	39.942	0.101652	145.14	4691.307	2417.559	2909.849	514.781
2A	3663.184	1593.475	3863.313	6496.938	6312.776	7823.001	3722.929	3407.648	6013.368	424.7035
2B	2033.899	8.831	34.93566	125.984	1056.359	1598.108	157.853	3059.698	41.03964	459.277
2C	0.037343	2.359	0		0	2.957	7723.022	1293.368	591.1588	922.609
2D	1066.24	35.828	0.165668	46.712	0.072983	473.42	2622.797	2443.246	1951.105	482.385
3A	124.224	67.087	744.053	844.191	2798.859	3296.191	1608.393	2299.802	501.7095	91.971
3B	46.30602	5.155	0	3.827	0	481.672	25.49807	2616.755	0	230.459
3C			0	2.98	0	3.556	2006.996	136.52	1280.858	272.333
3D	655.7779	105.602	1.796685	83.446	5.629363	2238.101	3327.12	2366.145	547.8022	194.167
Slope	0.313083		1.660373		0.964857		-0.02883		-0.00088	
Intercept	-159.929		-11.5112		494.8285		2464.09		474.485	
Standard error	0.062627		0.028965		0.103926		0.110827		0.045212	
Is slope significant?	Yes		Yes		Yes		No		No	
Is intercept significant?	Yes		No		Yes		Yes		Yes	
Is intercept < 25th %?	Yes		Yes		No		No		No	
Slope, no intercept	0.261066		1.656772		1.06737		0.460148		0.109773	
Standard error	0.044812		0.023075		0.091018		0.120389		0.049127	
Is slope significant?	Yes		Yes		Yes		Yes		Yes	
Flux (µg/m <sup>2</sup> -s)	313.08		1660.37		1067.37		460.15		109.77	
Flux Basis	Slope		Slope		Slope, no intercept		Slope, no intercept		Slope, no intercept	

Flux is calculated by the best-fit regression line slope between measured versus modeled concentrations divided by the ISC normalized flux rate of 0.001 g/m<sup>2</sup>s.



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Table 5-3. Regression statistics and flux rate estimates (sampling periods 6 – 9).

Period	6		7		8		9	
Sampler	Model	Measured	Model	Measured	Model	Measured	Model	Measured
1A	3456.755	216.175	11609.28	314.079	1552.92	71.547	4080.543	123.723
1B	2022.681	114.871	2748.818	275.269	0	73.188	1679.777	149.107
1C	0	1.755	0	213.241	2449.784	89.923	1762.972	109.349
1D	0.115435	8.466	2090.9	26.259	11795.2	208.06	3588.14	86.909
2A	3571.946	347.441	8434.137	542.631	8.711302	76.268	1947.974	95.798
2B	36.63884	14.558	1.041723	216.01	0	219.263	1875.293	173.549
2C			0	226.337	3448.886	162.105	751.882	40.838
2D	0.06493	11.234	2828.209	64.707	9271.463	134.444	2718.637	61.692
3A	553.1461	48.173	355.3792	113.07	0	57.098	0	119.37
3B			0	174.17	0	204.453	365.4685	108.332
3C			0	143.417	4137.128	102.465	869.1757	11.241
3D	0.89743	8.785	3701.673	25.891	782.8264	13.38	1807.005	4.274
Slope	0.075699		0.020389		0.006416		0.005429	
Intercept	4.617006		140.6111		99.80096		80.6459	
Standard error	0.008605		0.010218		0.00501		0.013354	
Is slope significant?	Yes		Yes		Yes		No	
Is intercept significant?	No		Yes		Yes		Yes	
Is intercept < 25th %?	Yes		No		No		No	
Slope, no intercept	0.077228		0.039028		0.019102		0.036946	
Standard error	0.006506		0.010955		0.006434		0.009374	
Is slope significant?	Yes		Yes		Yes		Yes	
Flux ( $\mu\text{g}/\text{m}^2\text{-s}$ )	75.70		39.03		19.10		36.95	
Flux Basis	Slope		Slope, no intercept		Slope, no intercept		Slope, no intercept	

<sup>1</sup> Flux is calculated by the best-fit regression line slope between measured versus modeled concentrations divided by the ISC normalized flux rate of  $0.001 \text{ g}/\text{m}^2\text{s}$ .

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Table 5-4. Regression statistics and flux rate estimates (sampling periods 10 – 12).

Period Sampler	10		11		12	
	Model	Measured	Model	Measured	Model	Measured
1A	4093.063442	19.58	7852.4397	75.737	1044.083055	31.841
1B	4108.583828	14.705	2342.722045	36.569	8006.650965	192.305
1C	189.6800433	35.045	0	4.453	8604.223748	180.924
1D	1603.134898	27.863	407.05388	4.247	6637.823233	108.804
2A	3444.601728	10.3135	7298.02039	108.7565	1442.904372	125.7775
2B	2243.696793	10.459	0.000883333	10.732	7724.110243	176.44
2C	109.2114567	22.588	532.7316117	8.608	6689.00044	139.419
2D	1435.747885	14.235	154.76009	13.401	942.7791133	39.882
3A	673.1098733	1.999	955.0505567	21.83	1665.413583	109.498
3B	0.019515	4.59	0	0	3288.788247	26.637
3C	226.3501783	2.882	0	0	5379.052083	67.367
3D	296.0853617	0	0	0	0	54.508
Slope	0.000196643		0.011163375		0.014425582	
Intercept	14.60862802		7.352236662		42.63078283	
Standard error	0.002186747		0.001281183		0.003808204	
Is slope significant?	No		Yes		Yes	
Is intercept significant?	Yes		Yes		Yes	
Is intercept < 25th %?	No		Yes		Yes	
Slope, no intercept	0.004949499		0.01234308		0.021005268	
Standard error	0.001987624		0.00112302		0.002545316	
Is slope significant?	Yes		Yes		Yes	
Flux (µg/m <sup>2</sup> -s)	4.95		11.16		14.43	
Flux Basis	Slope, no intercept		Slope		Slope	

<sup>1</sup> Flux is calculated by the best-fit regression line slope between measured versus modeled concentrations divided by the ISC normalized flux rate of 0.001 g/m<sup>2</sup>s.

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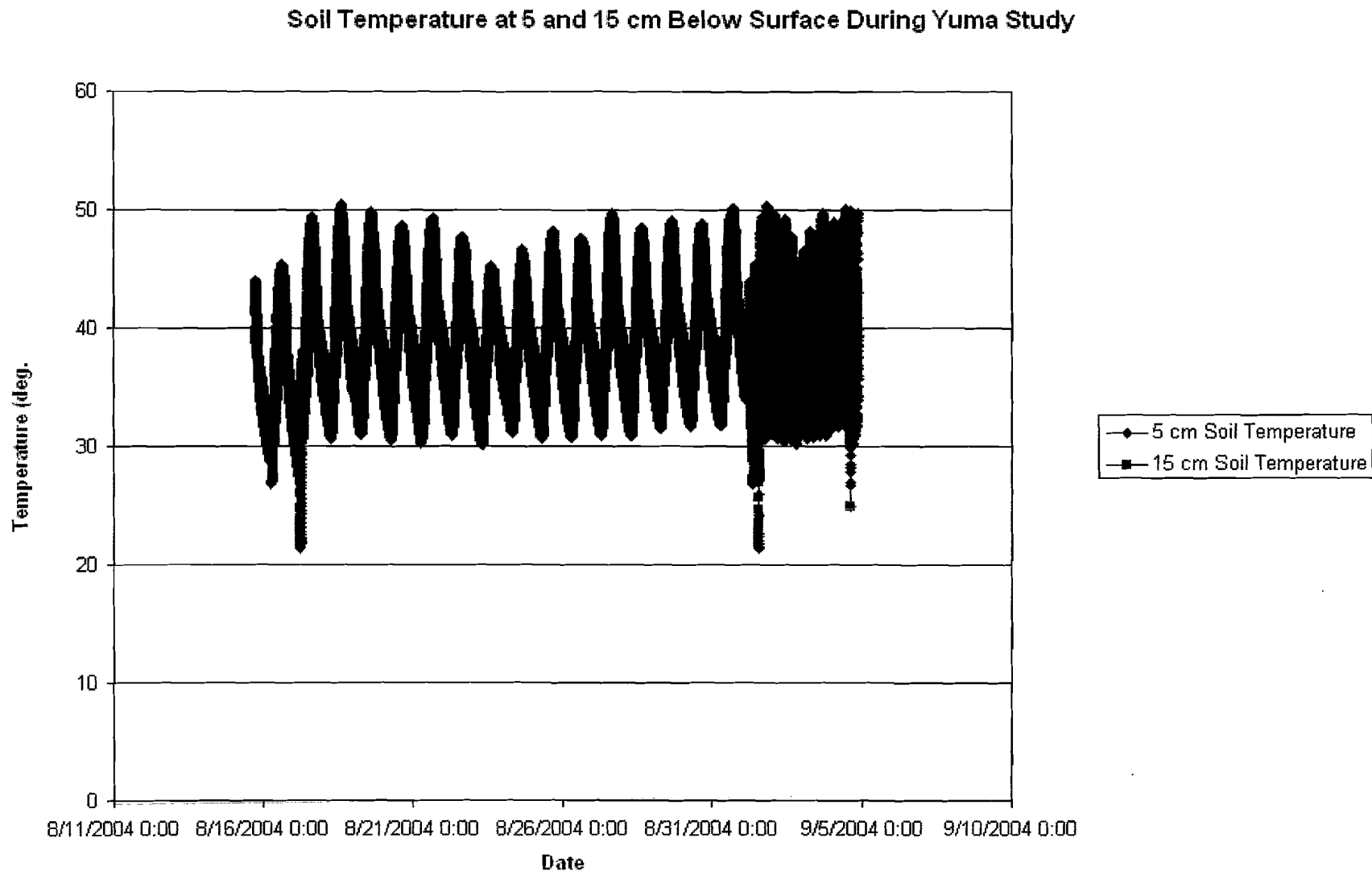
**Attachment 6: Plots of Measured Soil Properties**

**Data Evaluation Record on the field volatility of dimethyl disulfide**

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Figure 6-1. Measured soil temperature plots at five and fifteen centimeters below the surface.



# Data Evaluation Record on the field volatility of dimethyl disulfide

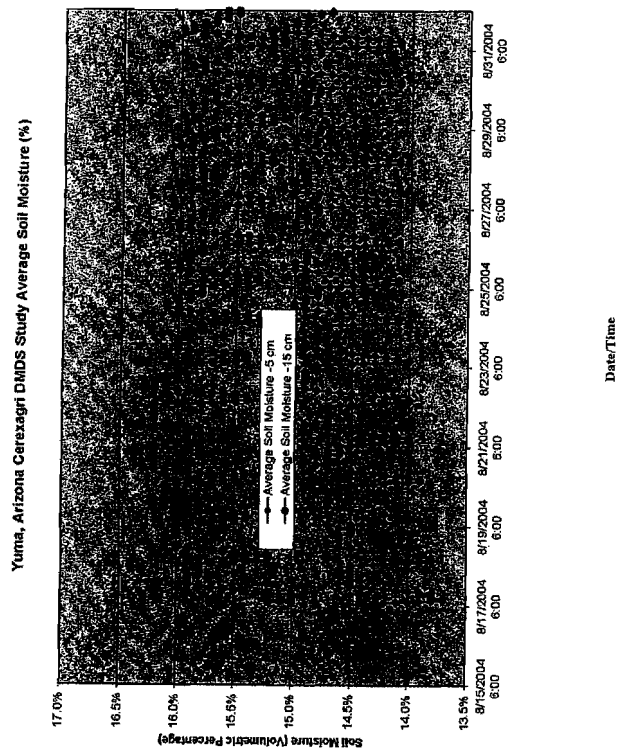
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Figure 6-2. Measured relative soil moisture plots at five and fifteen centimeters below the surface and air temperature at various locations during the study.

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