FIFE CDROM Vol. 3 Contents: NS001 Thematic Mapper Simulator (TMS) Imagery, 1987-1989



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FIFE CDROM Vol. 3 Contents: NS001 Thematic Mapper Simulator (TMS) Imagery, 1987-1989

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Documentation Revision Date: 2017-06-30

Data Set Version: 1

Summary

This data set provides aircraft-based NS001 Thematic Mapper Simulator (TMS) images of the study area associated with The First ISLSCP (International Satellite Land Surface Climatology Project) Field Experiment (FIFE) project conducted on the Konza Prairie in Kansas. The images were acquired during June 1987 to August 1989. The images in this data set were originally provided on the FIFE CD-ROM Volume 3.

The FIFE site was a 15 x 15 km area of grassland, most of which is under private management for grazing. About one-third of the area was managed as a Long Term Ecological Reserve (the Konza Prairie) for the study of grassland ecosystem dynamics.

There are 60 images in *.jpg format with this data set.



Figure 1. The Konza Prairie.

Citation

Strebel, D.E., D.R. Landis, K.F. Huemmrich, and B.W. Meeson. 2017. FIFE CDROM Vol. 3 Contents: NS001 Thematic Mapper Simulator (TMS) Imagery, 1987-1989. ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/130

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1. Data Set Overview

The FIFE Study Region was 15 x 15 km located south of the Tuttle Reservoir and Kansas River, and about 10 km from Manhattan, Kansas, US. Most of the site is under private management for grazing. About one-third of the area was managed as a Long Term Ecological Reserve (the Konza Prairie) for the study of grassland ecosystem dynamics. The first experiment was initially during the summer of 1987. A follow-up experiment at the same location took place in 1989. This data set provides the original contents of the FIFE CD-ROM Volume 3, and provides aircraft-based NS001 Thematic Mapper Simulator (TMS) image data files acquired over the period of June 1987 to August 1989. The NS001 TMS was flown aboard NASA's C-130 aircraft.

2. Data Characteristics

Spatial Coverage: Konza Prairie, Kansas, US

Spatial Resolution: flight lines that were approximately 3.5 km apart and 8 km wide

Temporal Coverage: 1987-06-04 to 1989-08-11

Temporal Resolution: The grid-pattern flight lines are 10-20 minutes apart. The lines processed to level 1 average 20-30 minutes apart, depending on the day.

Study Area: (All latitude and longitude given in decimal degrees)

Site	Westernmost Longitude	Easternmost Longitude	Northernmost Latitude	Southernmost Latitude
FIFE study site: Konza Prairie Reserve near Manhattan, Kansas	-96.58333	-96.58333	39.08333	39.08333

Data file information

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There are 60 images in the original TMS format included within the compressed file "FIFE_CDROM_Volume_3.zip". The image files are named according to the date, study area, and site.

3. Application and Derivation

The data are relevant to studies of grassland ecology and provide a historical snapshot of conditions in the late 1980s.

4. Quality Assessment

Not provided.

5. Data Acquisition, Materials, and Methods

FIFE Study Site:

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The FIFE Study Region was a 15 x 15 km area located south of the Tuttle Reservoir and Kansas River, and about 10-km from Manhattan, Kansas, US. Most of the site is under private management for grazing. About one-third of the area was managed as a Long Term Ecological Reserve (the Konza Prairie) for the study of grassland ecosystem dynamics. The FIFE experiment was initially during the summer of 1987. A follow-up experiment at the same location took place in 1989.

Methods

This data set provides aircraft-based NS001 Thematic Mapper Simulator (TMS) image data files acquired over the period of June 1987 to August 1989. The NS001 TMS was flown aboard NASA's C-130 aircraft. The data were collected at the 4,878 meter altitude during 1987 on flight lines that were approximately 3.5 km apart and 8 km wide. The flight lines were oriented perpendicular and parallel to the solar plane, ideally with three lines in each direction. This pattern covered the entire FIFE area, with multiple views (up to 6) of most of the central portion.

The data acquisition effort of FIFE included monitoring activities and Intensive Field Campaigns (IFCs). The monitoring effort, which operated more or less continuously through 1987, 1988 and 1989 consisted of the acquisition of AVHRR, Landsat, SPOT and GOES satellite data, ground data (soil, stream, biometric), relevant meteorological, and the observation of atmospheric optical properties. The IFCs had the specific objective of acquiring surface and airborne data in conjunction with satellite overpasses to study the biophysical and energetic processes over spatial scales from mm to km and temporal scales from seconds to an entire season. The IFCs required a large commitment of manpower and resources; thus, their combined duration during 1987 was only 57 days. The IFC periods targeted the critical phases of vegetative development (IFC-1 "greenup"; IFC-2 "peak greenness"; IFC-3 "dry-down"; IFC-4 "senescence"). In 1987 unusual weather conditions produced very similar conditions during the first three IFC's (wet soils and green vegetation) followed by a totally senescent vegetation cover and dry soil in IFC-4. During 1989 a 20 day (July 24-August 12) IFC was instituted to obtain the "dry down" missed during IFC-3.

6. Data Access

These data are available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

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Contact for Data Center Access Information:

- E-mail: uso@daac.ornl.gov
- Telephone: +1 (865) 241-3952

7. References

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