



Fermi

Gamma-ray Space Telescope

# Software Week March 2-6, 2020

## Current Status Updates

Software Week, March 2020

# Fermitools Status


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- **Fermitools**
  - **Moved to Conda for distribution. First release 2018-10-15.**
  - **Third party dependencies handled by Conda.**
  - **Reduces library compatibility issues.**
  - **Faster releases.**
  - **Works in MS-Windows in Linux Subsystem for Windows**
- **Continuous integration (CI) model and open source tools**
  - **Code moved from CVS to Github.**
  - **Using Microsoft Azure cloud for build and test pipeline.**
    - **Allows builds on Linux and MacOS.**
  - **When a change is checked into Github, a build is automatically started, tests run, and binaries pushed to Conda cloud (if tests passed).**

# Fermitools Releases

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- **Fermitools first release 2018-10-15.**
- **Faster release schedule than ScienceTools**
  - **Patch releases in March, April, May, June, July 2019.**
  - **Release 1.2.0 with energy dispersion correction method in October 2019.**
- **Previous release 1.2.1**
  - **988 Linux downloads, 234 MacOS**
- **Latest release 1.2.23 in February 2020**
  - **161 Linux downloads, 45 MacOS**
- **Lots of bug fixes still needed. Joe is working on them.**
- **Alex working on compiler and ROOT 6 updates.**
- **Tom working on Python 3 updates.**
- **Need to merge all changes together.**
- **Release as Fermitools 2.0. Stop supported Python 2 releases.**

Pull requests Issues Marketplace Explore🔔 + 👤



## Fermi Gamma-Ray Space Telescope

📍 Orbit <https://fermi.gsfc.nasa.gov>

📁 Repositories 158 📦 Packages 👤 People 25 👥 Teams 1 📁 Projects 2

Type: All ▾ Language: All ▾ New

### Fermitools-conda

● Shell 🔗 BSD-3-Clause 🍷 9 ★ 13 ⓘ 16 🛡️ 0 Updated yesterday

### modelEditor

FSSC ScienceTools Model Editor GUI

● Python 🔗 BSD-3-Clause 🍷 0 ★ 0 ⓘ 0 🛡️ 0 Updated yesterday

### ScienceTools

● Python 🔗 BSD-3-Clause 🍷 0 ★ 0 ⓘ 0 🛡️ 2 Updated 2 days ago

### fermitools-fhelp

Repository for Fermitools fhelp files

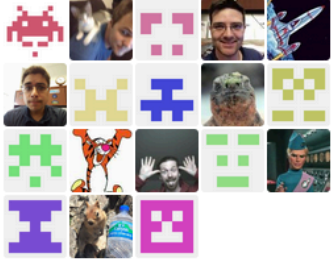
🔗 BSD-3-Clause 🍷 0 ★ 0 ⓘ 0 🛡️ 0 Updated 2 days ago

#### Top languages

● C++ ● Python ● Shell ● C  
● Dockerfile

#### People

25 >



# Azure Pipeline Runs

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**Fermitools**

- Overview
- Boards
- Repos
- Pipelines**
- Pipelines
- Releases
- Artifacts

## Pipelines

Recent All **Runs**

### All pipeline runs

Description	Stages	
<b>Add conda-forge repository</b> #20200224.3 on Fermitools - Full Build python3_up... f3da...		Monday 36m 22s
<b>update pipeline file for python3</b> #20200224.2 on Fermitools - Full Build python3_up... 5f13...		Monday 54s
<b>Fix merge errors after merging in master</b> #20200224.1 on Fermitools - Full Build python3_up... 1ae0...		Monday 2m 9s
<b>Remove old data version pinning</b> #20200221.3 on Fermitools - Full Build master 87953aa		Feb 21 43m 4s
<b>Pull ape from root6 label and drop cf201901 label from pipeline</b> #20200221.2 on Fermitools - Full Build root6 0e90348		Feb 21 54m 34s

## fermi / packages / fermitools



- Conda
- Files
- Labels
- Badges

Filters

Type: All ▾




Version: All ▾

Label: All ▾

<input type="checkbox"/>	Type	Size	Name	Uploaded	Uploader	Downloads	Labels
<input type="checkbox"/>	conda	164.1 MB	<a href="#">linux-64/fermitools-1.2.23-py27h39e3cac_0.tar.bz2</a>	22 days and 4 hours ago	jasercion	161	main
<input type="checkbox"/>	conda	89.7 MB	<a href="#">osx-64/fermitools-1.2.23-py27h39e3cac_0.tar.bz2</a>	24 days and 23 hours ago	jasercion	45	main
<input type="checkbox"/>	conda	89.7 MB	<a href="#">osx-64/fermitools-1.2.22-py27h39e3cac_0.tar.bz2</a>	25 days and 13 minutes ago	jasercion	1	dev
<input type="checkbox"/>	conda	151.3 MB	<a href="#">linux-64/fermitools-1.2.22-py27h39e3cac_0.tar.bz2</a>	25 days and 19 minutes ago	jasercion	1	dev
<input type="checkbox"/>	conda	151.3 MB	<a href="#">linux-64/fermitools-1.2.21-py27h39e3cac_0.tar.bz2</a>	29 days and 3 hours ago	jasercion	3	alpha dev
<input type="checkbox"/>	conda	89.7 MB	<a href="#">osx-64/fermitools-1.2.21-py27h39e3cac_0.tar.bz2</a>	29 days and 3 hours ago	jasercion	2	alpha dev
<input type="checkbox"/>	conda	151.3 MB	<a href="#">linux-64/fermitools-1.2.20-py27h39e3cac_1.tar.bz2</a>	29 days and 4 hours ago	jasercion	1	dev
<input type="checkbox"/>	conda	89.7 MB	<a href="#">osx-64/fermitools-1.2.20-py27h39e3cac_0.tar.bz2</a>	1 month and 1 day ago	jasercion	1	dev
<input type="checkbox"/>	conda	151.3 MB	<a href="#">linux-64/fermitools-1.2.20-py27h39e3cac_0.tar.bz2</a>	1 month and 1 day ago	jasercion	16	dev



Pull requests Issues Marketplace Explore
🔔 + 👤

Created	Assigned	Mentioned	is:open is:issue archived:false user:fermi-lat sort:updated-desc
<span>🚨 56 Open</span> <span>✓ 59 Closed</span>		<span>Visibility ▾</span>	<span>Organization ▾</span>
<span>🚨</span> <b>fermi-lat/Likelihood fit with SmoothBrokenPowerLaw issue</b> <span>bug</span> <span>help wanted</span>			<span>💬 6</span>
<span>#54</span> opened 16 days ago by dmalishev <span>🕒</span> updated 2 hours ago			
<span>🚨</span> <b>fermi-lat/Likelihood gtlke does not behave as gtsrcmaps when irfs=P8R3_SOURCE_V2</b>			
<span>#56</span> opened 6 hours ago by phbruel <span>🕒</span> updated 6 hours ago			
<span>🚨</span> <b>fermi-lat/fermitools-fhelp Add help for gteffbkg, gtalphabkg, gtwtmap</b>			<span>💬 4</span>
<span>#2</span> opened 8 days ago by eacharles <span>🕒</span> updated 3 days ago			
<span>🚨</span> <b>fermi-lat/irfs Remove pre-launch files</b>			<span>💬 1</span>
<span>#9</span> opened 7 days ago by donhorner <span>🕒</span> updated 4 days ago			
<span>🚨</span> <b>fermi-lat/Likelihood Par files for gteffbkg, gttmap, gttscube, gthealcube should include edisp_bins parameter.</b>			
<span>#55</span> opened 8 days ago by eacharles <span>🕒</span> updated 8 days ago			
<span>🚨</span> <b>fermi-lat/Fermitools-conda gtsrcmap fails with floating point exception</b> <span>bug</span>			<span>💬 3</span>
<span>#59</span> opened 14 days ago by me-manu <span>🕒</span> updated 10 days ago			

# Fermitools Status

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- **User Documentation updates**
  - **Switch to Jupyter notebooks**
- **Documenting how to use Azure pipeline, etc.**
- **Answering questions via helpdesk email and Github**
  - **Increasingly getting things through Github issue tracker**



- **Current data server runs on old hardware**
  - Photon and spacecraft data are served from cluster of 10 nodes purchased in 2007.
  - Events and 1s spacecraft are handled by single machine from 2011.
  - Photon and event data are stored on disk in HTM FITS files.
- **Replacing with 5 new servers.**
  - Better CPU and more RAM.
  - Using NVME SSDs to increase I/O.
  - Limiting factor in data server speed is disk I/O.
- **Will greatly reduce query times.**
- **Will be able to add new capabilities.**
  - Need to determine what those will be.
- **New machines might ship to the FSSC this week after various delays.**

# SLAC Tasks Status

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- **Various tasks have been successfully transferred to FSSC and others.**
  - **LAT mission planning mostly transferred to FSSC**
    - **Rob Cameron is still necessary for some things.**
  - **Tom, Michael, Helen are maintaining the pipeline and fixing problems as they arise with outside help as needed.**
  - **Backup and Archiver checkups done by Don now.**
  - **L1 Calibration updates by Tom, Don, Joe Eggen, and Tyrell.**
- **Spacecraft (FT2) file reprocessing**
- **Pipeline knowledge**
  - **Maria Elena training Nicola.**
  - **Need new compile and install new version**
- **Phase out of SL6 in favor of Centos7**
  - **Brian and Tom working on containerizing pipeline.**
  - **Batch farm – new machines coming**

# Spacecraft (FT2) File Reprocessing

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- **Primary change is to add velocity information.**
  - **Requested by pulsar community.**
- **Also improved calculation for geodetic latitude and altitude.**
- **International Geomagnetic Reference Field (IGRF) needs to be update.**
- **Current status**
  - **Fixing old runs**
  - **Code for geo changes was updated and tested.**
  - **IGRF update?**
- **About 60k files to reprocess, deliver, and ingest at FSSC**
- **Timeframe**
  - **Several weeks to remake all the files**
  - **Need to be careful not to overload and interfere with production pipeline**
  - **At least a week to ingest at FSSC**