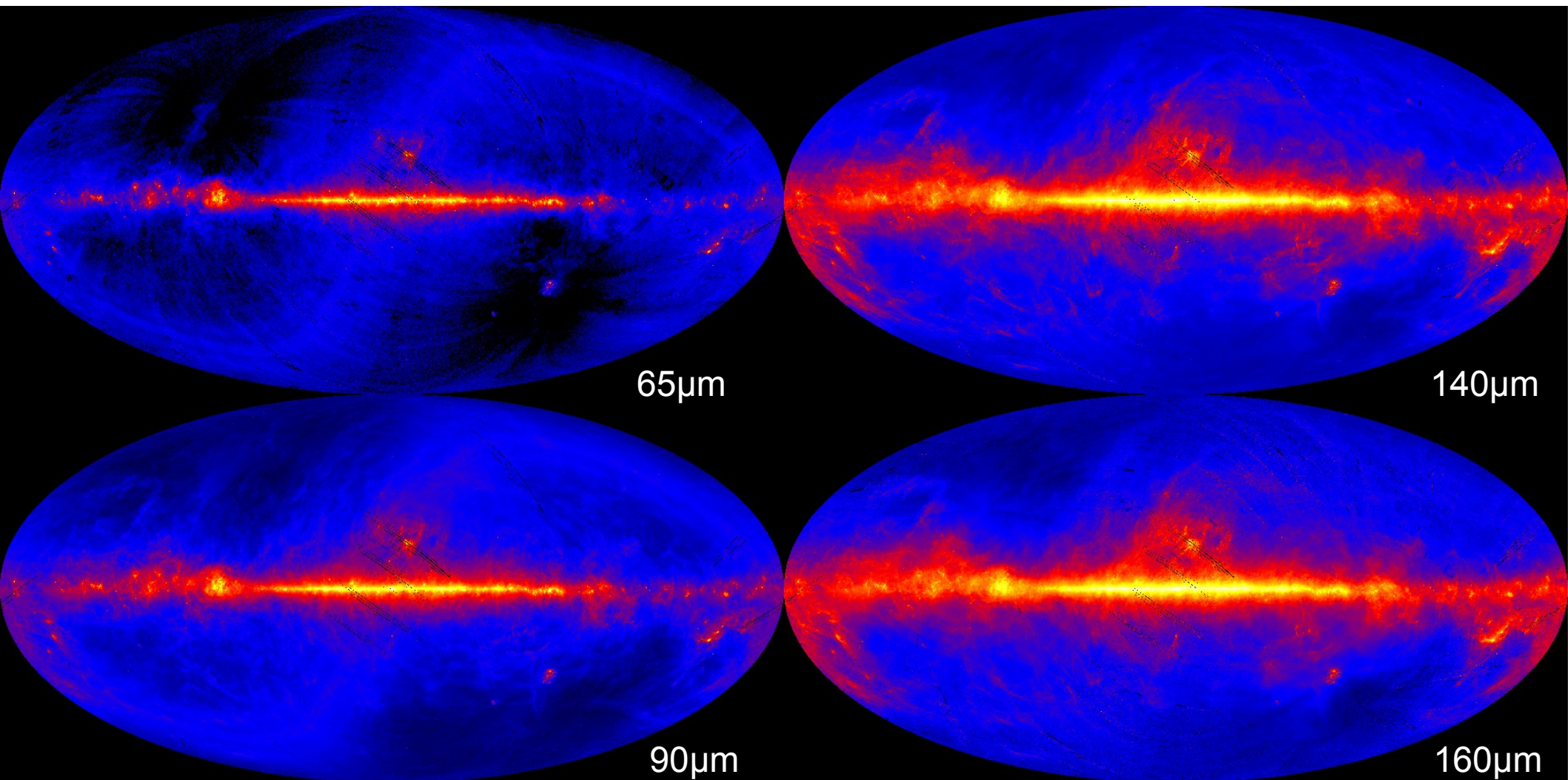


「あかり」遠赤外線全天マップ



2015年3月20日 天文学会「あかり」データ説明会
土井靖生(東大総文)

“スーパーIRAS”としての「あかり」

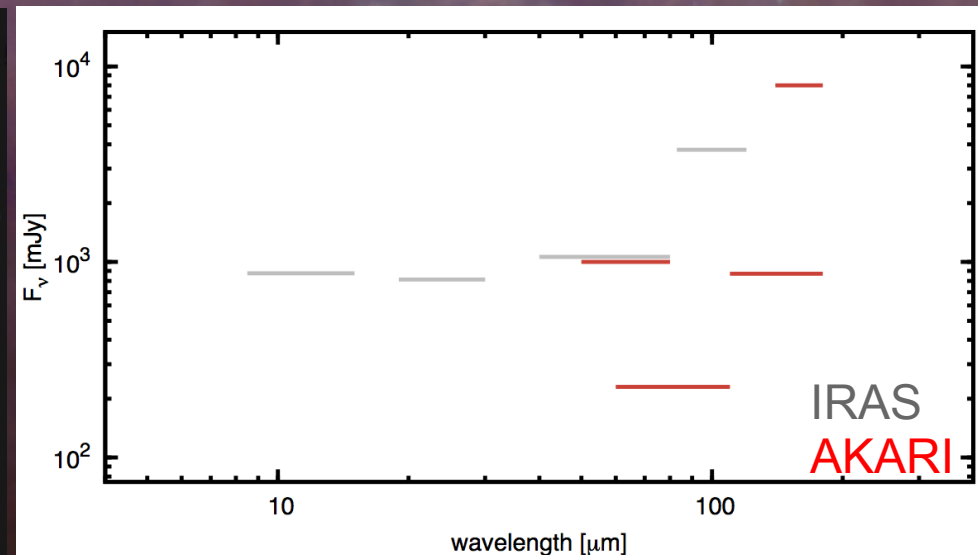
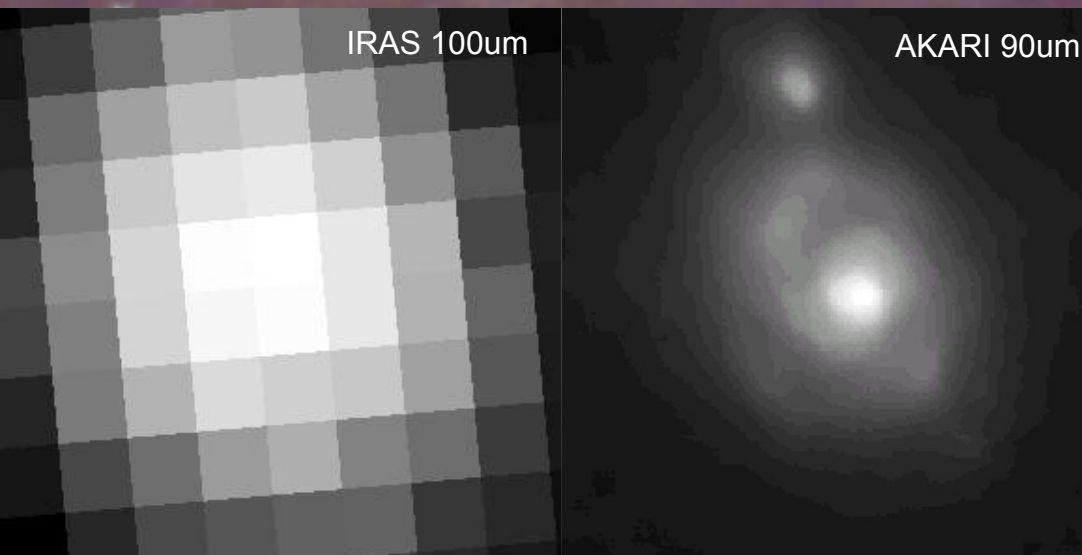
①空間分解能の向上

1分角~1.5分角の空間分解能を達成

②検出感度の向上

③観測波長範囲の拡大

>100 μm への伸展による、遠赤外線輻射のレイリー・ジーンズ波長域の観測



13:30~@C会場 Q20a (土井他) – よろしければこちらもぜひ。

「あかり」遠赤外線全天マップは
以下の方々の尽力によりお送りしております。

FIS画像解析チームメンバー

東京大学

土井靖生 (doi@ea.c.u-tokyo.ac.jp)、大坪貴文

宇宙研

瀧田怜、有松亘、川田光伸、松浦周二、北村良実、中川貴雄

東北大学

森嶋隆裕、服部誠

筑波大学

田中昌宏

RAL/Open University

Lys Figueredo, Mireya Etxaluze, Glenn J. White

宇宙研在籍中に関わった方々

小麥真也、池田紀夫、加藤大輔

共同研究大歓迎です。データの使い方教えます。:-)

データ取得方法

- クイックルック:

Aladin(<http://aladin.u-strasbg.fr/>)が便利です。

- プロジェクトデータページ:

<http://www.ir.isas.jaxa.jp/AKARI/Observation/>

http://www.ir.isas.jaxa.jp/AKARI/Archive/Images/FIS_AllSkyMap/

6°×6°画像タイル(黄道座標系、5°グリッド)での提供
ファイルサーチ & ダウンロード、supplementary info.

- 宇宙研データアーカイブ(DARTS)

<https://darts.isas.jaxa.jp/astro/akari/>

- 天文台VO(<http://jvo.nao.ac.jp/portal/top-page.do>)

<http://jvo.nao.ac.jp/portal/jvosky.do>

<http://jvo.nao.ac.jp/portal/search2.do>



AKARI Observers Page

[Top]

Last Update : 2014/12/19

[AKARI on ADS](#)

[Data Archive]

What's New!

[Publications]

- 2014/12/19: [AKARI Far-infrared All-Sky Survey Maps public release](#)
- 2014/10/27: [Release plan of the AKARI processed data](#)
- 2014/03/10: [The Asteroid Catalog using AKARI IRC Slow-Scan Observations](#)
- 2014/03/10: [AKARI Near-infrared Spectral Atlas of Galactic HII regions](#)
- 2013/12/02: [Updates on the IRC imaging toolkit for Phase 1 & 2 and Phase 3.](#)
- 2013/10/16: [AKARI-NEP Source Catalogue \(NEP-Deep\) Version 2 Public Release](#)
- 2013/08/23: [Update on the IRC spectroscopic toolkit for Phase 1&2.](#)
- 2013/03/15: [AKARI-NEP Source Catalogue \(NEP-Deep, NEP-Wide\) Version 1 Public Release](#)
- 2013/01/10: [AKARI-LMC Near-infrared Spectroscopic Catalogue Version 1 Public Release](#)
- 2012/11/13: [AKARI-LMC Point Source Catalogue Version 1 Public Release](#)

[Data Archive]

[Data Reduction]

[Observations]

[Documents]

[MP]

[Helpdesk]

[Previous News](#)

AKARI Archive Data

ここです。

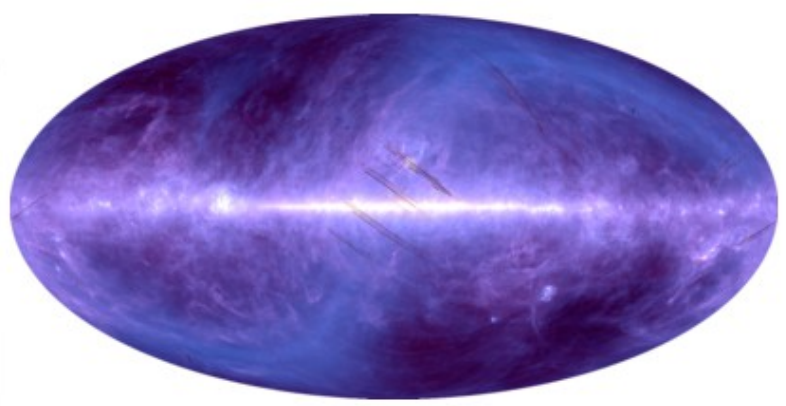
- [AKARI Far-infrared All-Sky Survey Maps public release](#)
 - [AKARI Far-infrared All-Sky Survey Maps](#) [2014/12/19] [New!]
- The AKARI North Ecliptic Pole Survey
 - [The AKARI-NEP-Deep Source Catalogue Version 2](#)
 - [The AKARI-NEP-Deep Source Catalogue Version 1](#)
 - [The AKARI-NEP-Wide Source Catalogue Version 1](#)
- The AKARI Infrared Camera Survey of the Large Magellanic Cloud
 - [The AKARI-LMC Point Source Catalogue](#)
 - [The AKARI-LMC Near-infrared Spectroscopic Catalogue](#)
- The AKARI Asteroid Catalogue (AcuA)
 - [Access to data file and the Release note \(on DARTS\)](#)
 - [Reference paper \(Usui et al. 2011, PASJ, 63, 1117-1138\) on ADS](#)
- The AKARI Point Source Catalogues Version 1
 - [Access to data files and the Release notes](#)
 - [AKARI Catalogue Archive System \(AKARI-CAS\) on DARTS: Catalogue mining tools](#)

AKARI Far-infrared All-Sky Survey Maps

Last Update : 2015/03/18

What's New!

2015/03/18: Links to DARTS and JVO created. 2014/12/19: AKARI Far-infrared All-Sky Survey Maps version 1 public release.



関連する情報はこちら

[Documents]

- [ReadMe.txt](#)
Description of data files and caveats for the users are presented. Users of the data are **strongly recommended to read this note** prior to scientific analysis.
- Following papers describes details of the AKARI Far-infrared All-Sky Survey Maps, data processing and calibration, and basic performance of the data.
 - [Doi et al.](#), submitted to PASJ. (updated: 2015 Feb. 24)
 - [Takita et al.](#), submitted to PASJ. (updated: 2015 Feb. 24)
- Previous version of description papers.
 - [Doi et al. \(draft1\)](#)
 - [Takita et al. \(draft1\)](#)

[Data]

- [Image query of AKARI Far-infrared All-Sky Survey Maps](#)

データ取得ページ

Alternative Data Archives

- [AKARI All-Sky Map Data Archive Server \(on DARTS\)](#).
- [AKARI All-Sky Map Data on JVO Sky \(ADC/NAOJ\)](#).
- [JVOQL \(ADC/NAOJ\)](#).
- [JVO Portal \(ADC/NAOJ, Search by Keyword such as "AKARI FIS maps"\)](#).

データ取得ページ(外部)



AKARI Far-infrared All-Sky Survey maps

Image query service

Required Parameters:

Object Name or Coordinate:

(e.g., "Ori A" or "12 34 56.7, +76 54 32.1", or "123.45, -12.345")

Coordinate System:

6°×6°画像タイル
(黄道座標系、5°グリッド)
でのデータ提供

Options:

Search Radius [degrees]: (Max: 90)

[query for multiple target](#)

Miscellaneous

[region list](#)

This is a list of map region ID and its center coordinate in J2000.

[Beam profile](#)

The FIS beam profiles are created for the shortest three bands (N60, WIDE-S, and WIDE-L) by stacking images of standard stars as the same manner with [Arimatsu et al. 2014 PASJ 66 47](#). The profile for N160 band is not available due to low S/N ratio for standard stars. However, since the characteristics of point sources at WIDE-L and N160 bands are similar, you can assume that the N160 PSF is the same with WIDE-L one. Note that since the PSFs are constructed by stacking images of standard stars, its accuracy and universality are not guaranteed, such as similarity of the PSF shape at different sky position (or dependency to the number of scans).

Update info

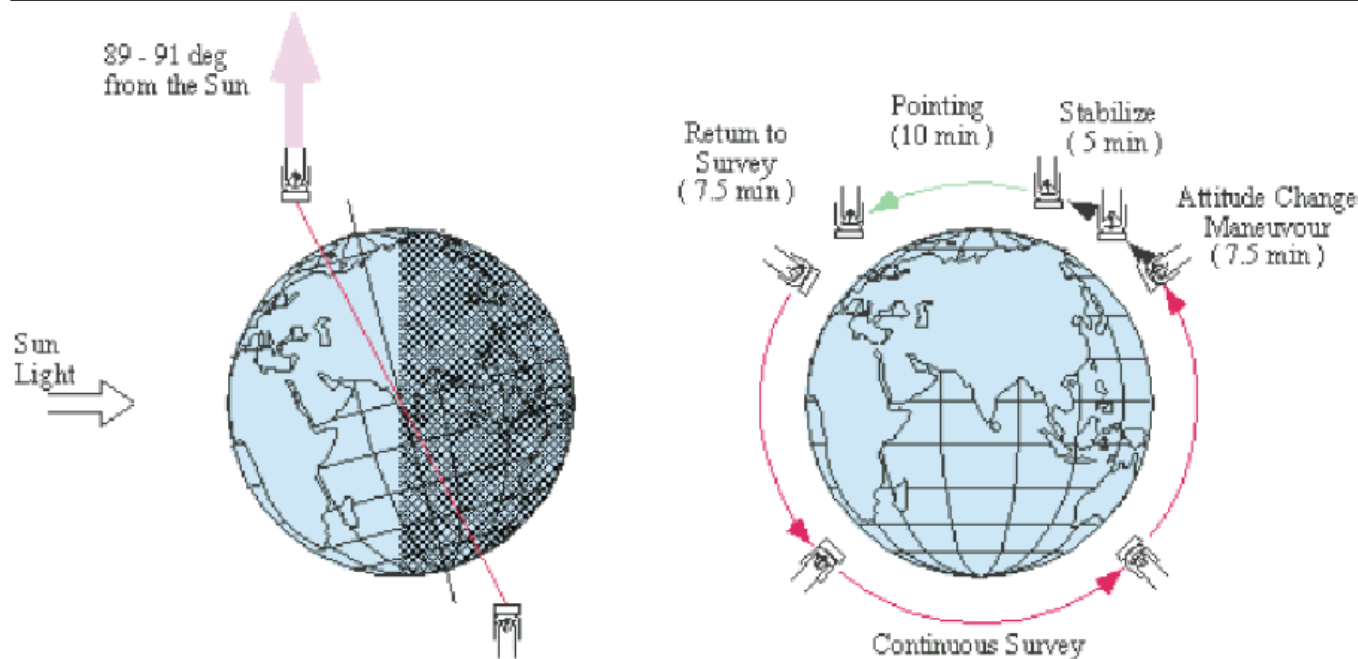
- 2014.12.19 Public release!
- 2014.11.11 Beam profiles are available.
- 2014.10.24 Updated to Beta 2.1.
- 2014.03.31 Multiple target query form was added.
- 2014.03.07 Beta 2.0 released.

Helpdesk

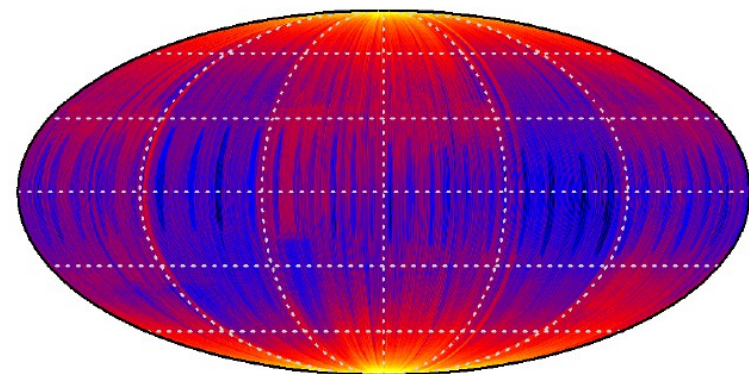
データの特徴

- 全天の99%以上の領域をカバー
- 黄道座標の南北方向にスキャン
- 領域毎に観測回数
の非一様性あり
- データクオリティの観測回数依存性

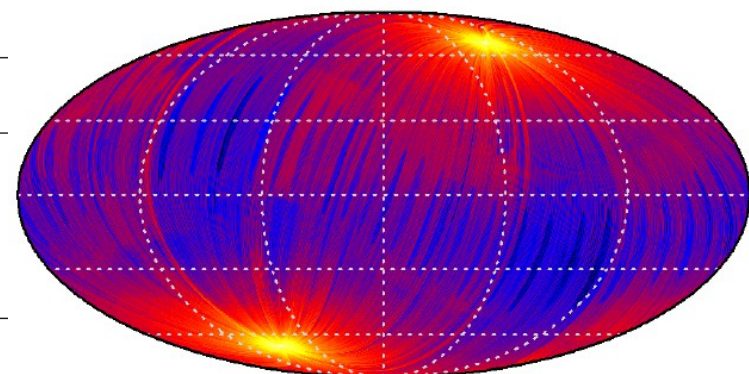
Scan coverage	Covered region	Multiply covered region	≥ 5 times	≥ 10 times	Not covered
N60	99.1%	96.9%	60.3%	13.5%	0.9%
Wide-S	99.1%	97.0%	61.0%	13.8%	0.9%
Wide-L	99.5%	98.4%	78.7%	25.9%	0.5%
N160	99.5%	98.4%	76.8%	24.1%	0.5%
4 bands	99.1%	96.8%	60.0%	13.2%	0.9%



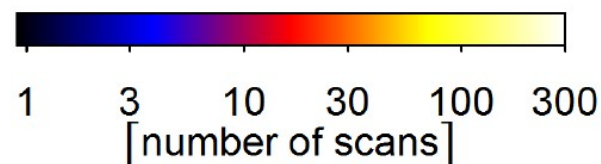
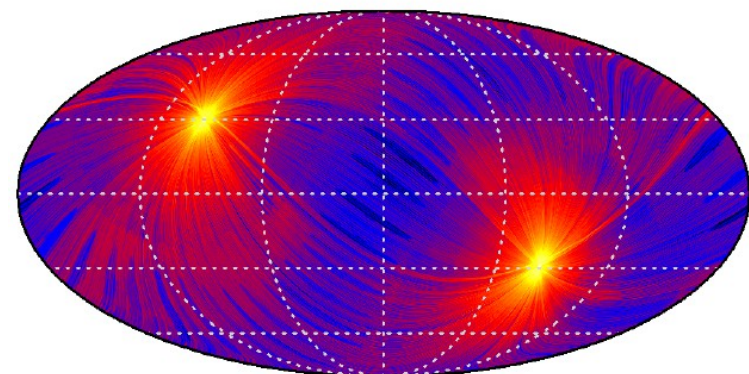
Ecliptic Coordinates



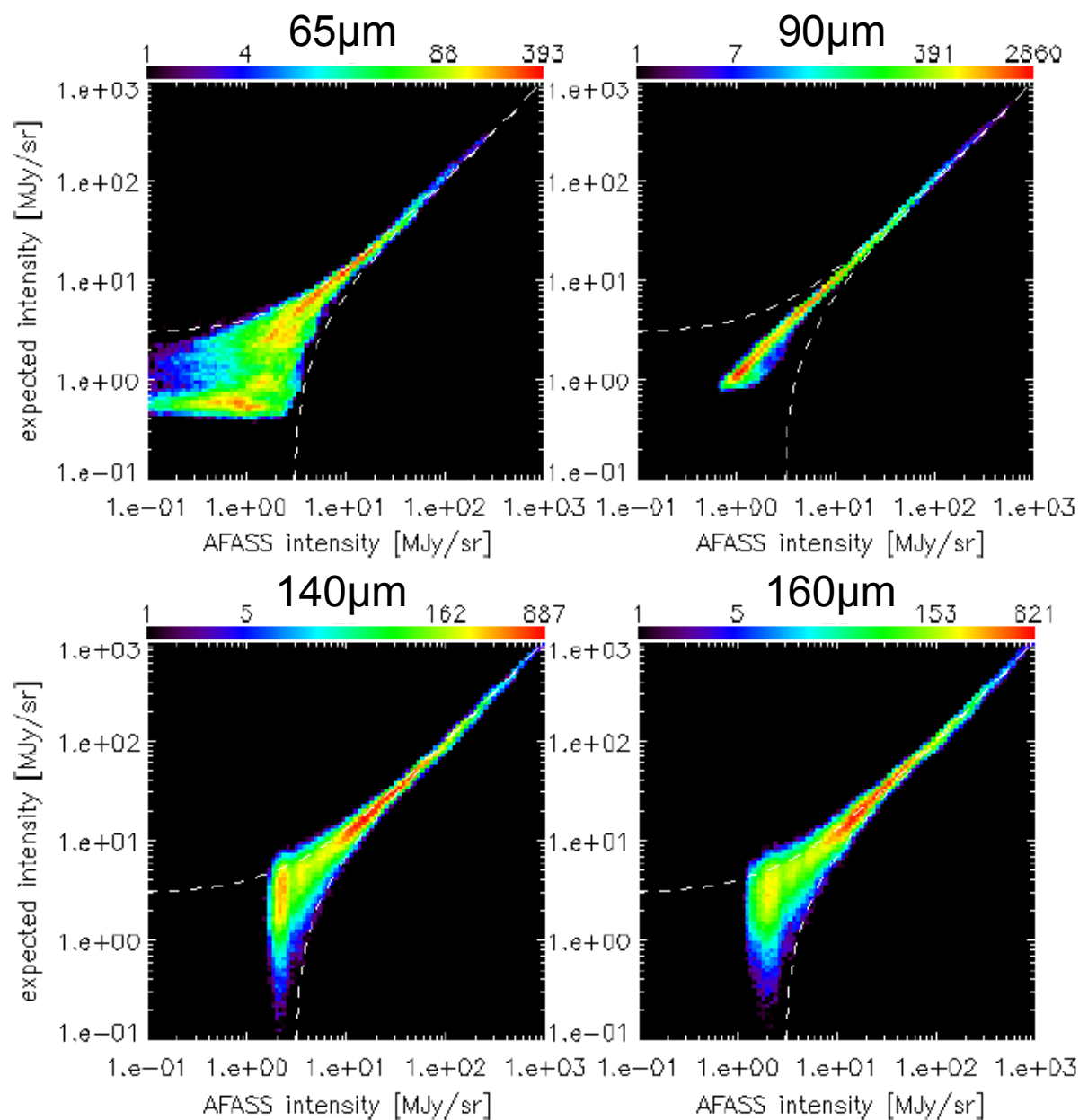
Equatorial Coordinates



Galactic Coordinates



COBE/DIRBEを参照した絶対値較正



不定性<10%: 10[MJy/sr] (65 μ m)
 3[MJy/sr] (90 μ m)
 25[MJy/sr] (140 μ m)
 26[MJy/sr] (160 μ m)

	N60	WIDE-S	WIDE-L	N160
MJy sr ⁻¹				
2.5	*	15.1%	*	*
4.0	*	8.1%	*	*
6.3	20.1%	4.7%	*	*
10	9.9%	4.5%	45.4%	56.1%
16	8.4%	4.2%	14.3%	16.6%
25	9.7%	4.3%	10.1%	11.2%
40	10.8%	4.5%	8.3%	8.8%
63	11.1%	5.3%	8.1%	7.9%
100	12.5%	5.7%	8.9%	8.9%
160	10.4%	7.3%	9.6%	9.7%
250	13.2%	8.3%	9.8%	10.3%
400	11.3%	8.1%	8.8%	8.9%
630	11.7%	10.3%	7.0%	7.3%
1000	13.0%	7.9%	5.9%	6.5%

点線は±3[MJy/sr]

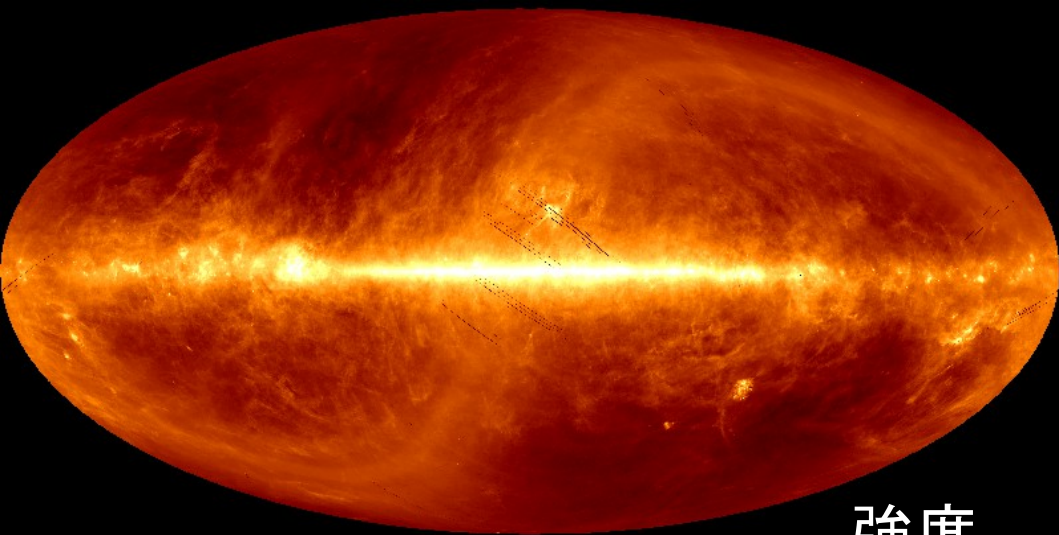
相対誤差 分散値の観測回数依存性

観測回数	1	2	3	4	5
65 μm	6.0	5.7	5.3	4.8	4.4
90 μm	1.3	1.2	1.1	1.0	0.9
140 μm	4.7	3.4	3.0	2.3	1.9
160 μm	10.2	10.8	8.6	5.8	4.0

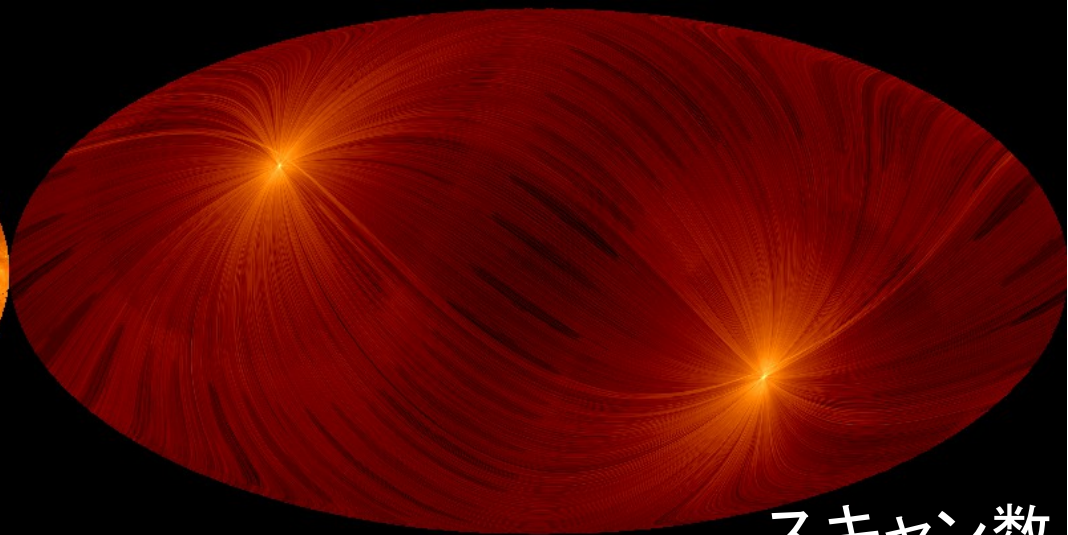
[MJy/sr]

mode values of sigma for each data set

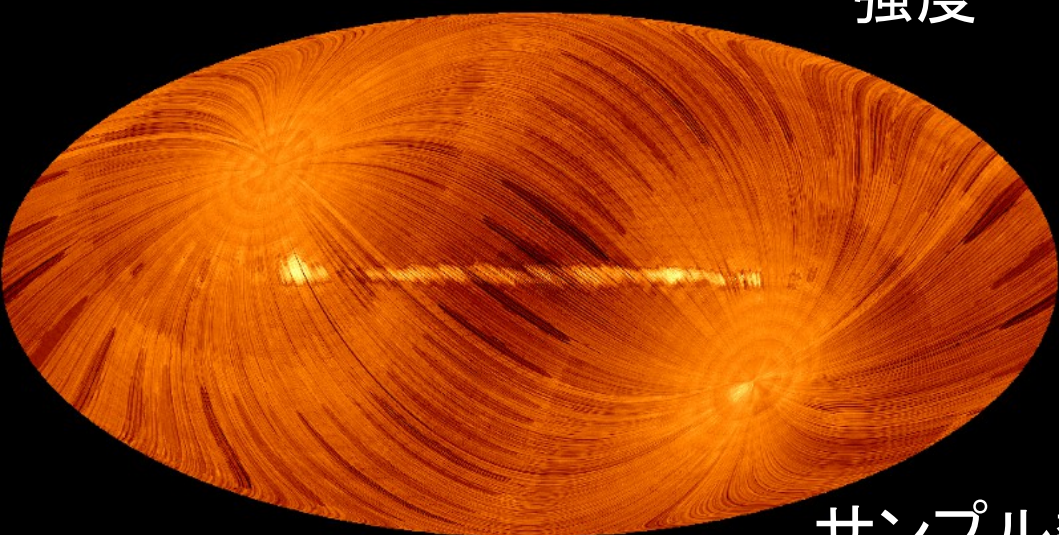
個々の画像ピクセルの統計情報



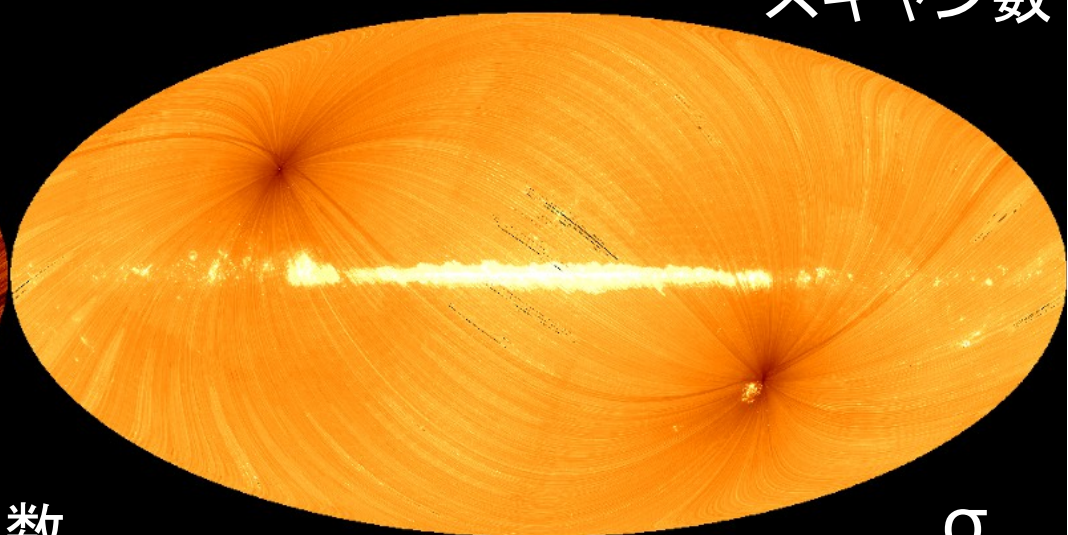
強度



スキャン数



サンプル数



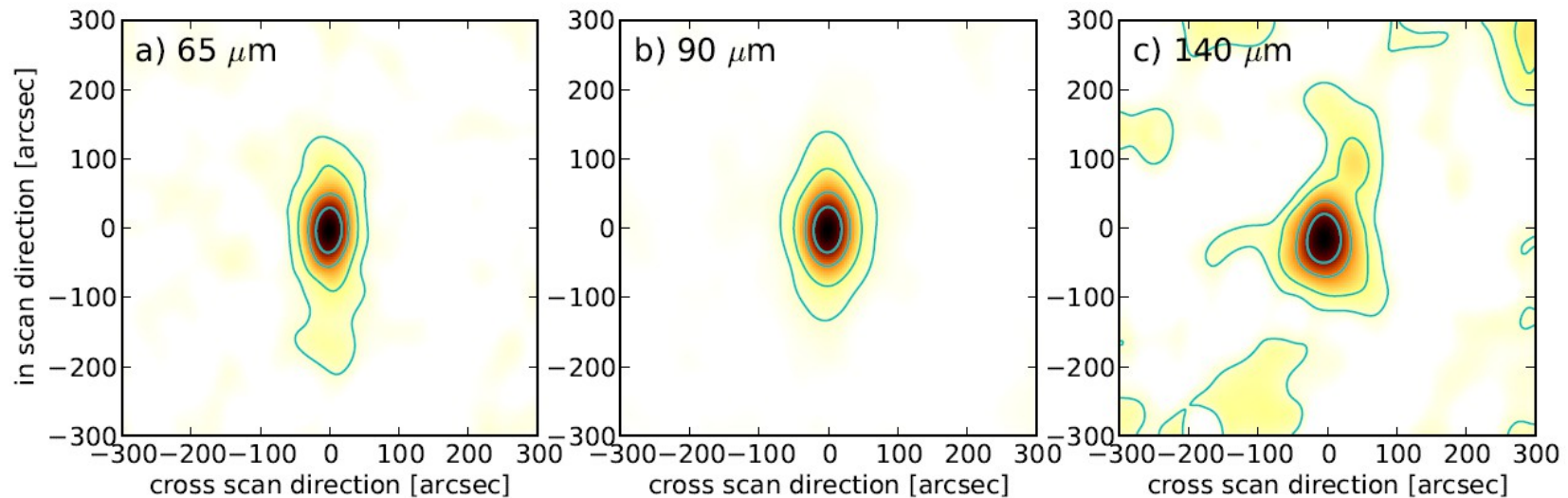
σ

90 μ mの例

PSF

	N60	WIDE-S	WIDE-L
FWHM [arcsec]	63.4 ± 0.2	77.8 ± 0.2	88.3 ± 0.9
(in-scan)	76.1 ± 0.4	102.3 ± 0.3	98.3 ± 1.4
(cross-scan)	31.3 ± 0.3	55.0 ± 0.1	72.1 ± 1.1
solid angle [arcsec ²]	2699 ± 40	6375 ± 30	8031 ± 237

FWHM
63" (65 μ m), 78" (90 μ m),
88" (140 μ m, 160 μ m *)
*: 160 μ mバンドは140 μ mバンドと
同等と考えられる。

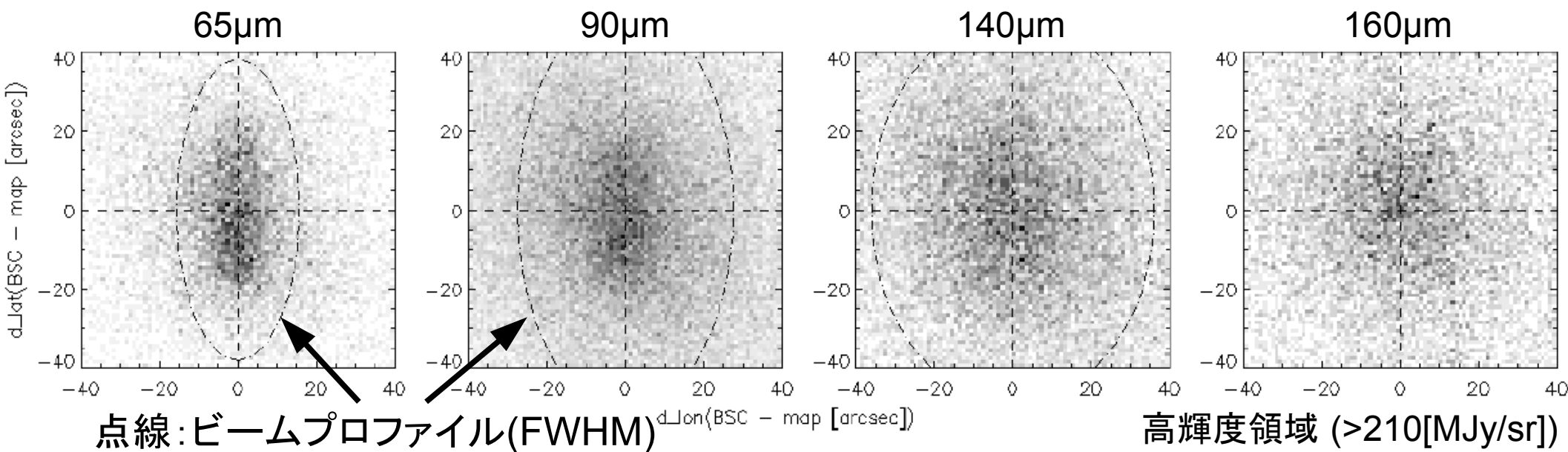
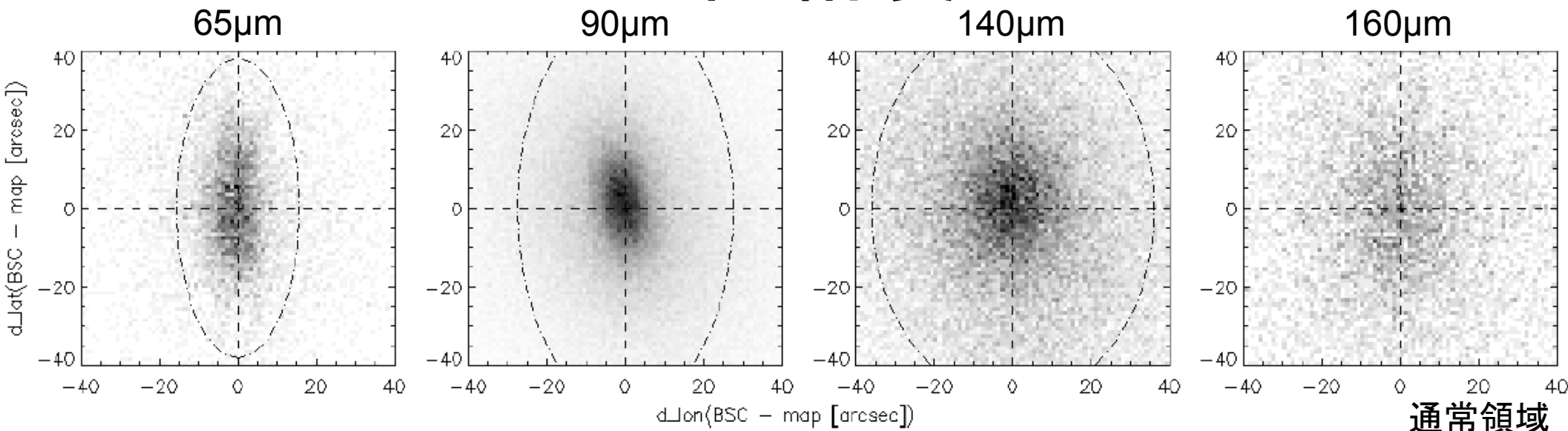


In-scan 方向(=黄緯方向)にやや伸びた形状

データ取得ページにPSFのFITSファイルがあります。

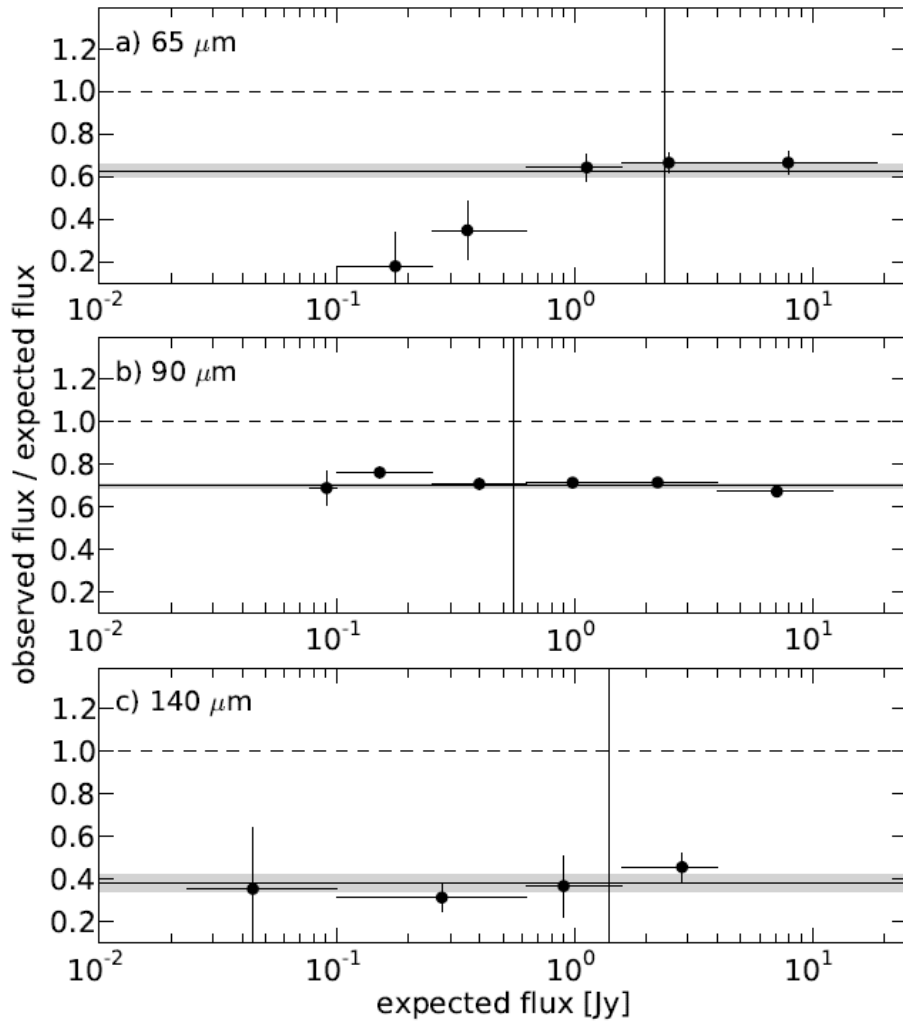
– <http://www.ir.isas.jaxa.jp/AKARI/Archive/Images/FISMAP/>

位置精度



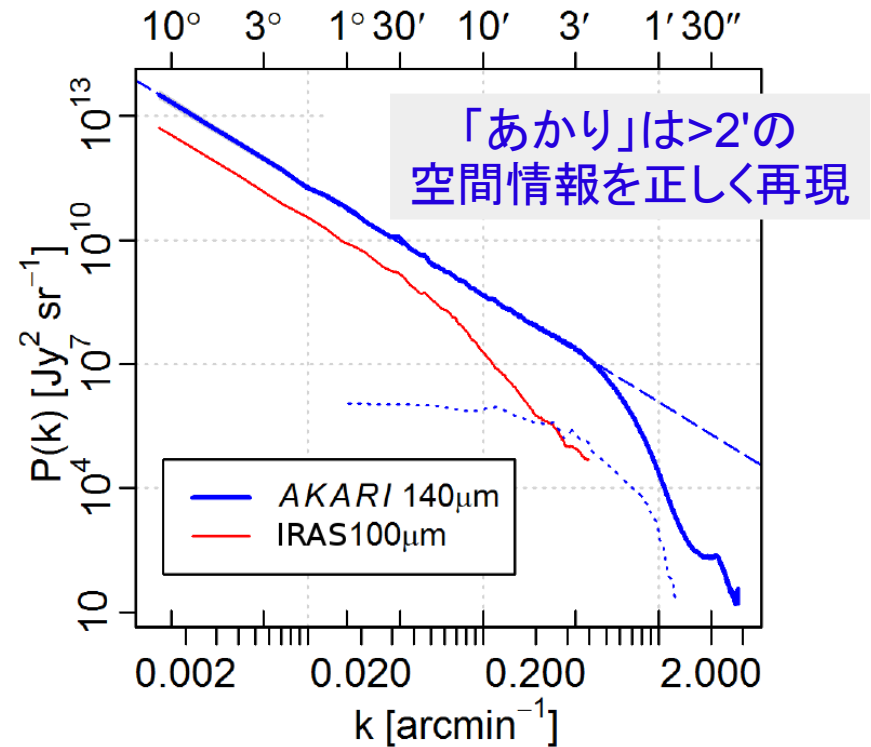
位置誤差はビームプロファイル内
(AKARI点源カタログとのクロスマッチによる)

点源フラックス変換係数



開口測光値/点源フラックス:

- 0.627 ± 0.029 (65 μm)
- 0.696 ± 0.008 (90 μm)
- 0.381 ± 0.043 (140 μm)

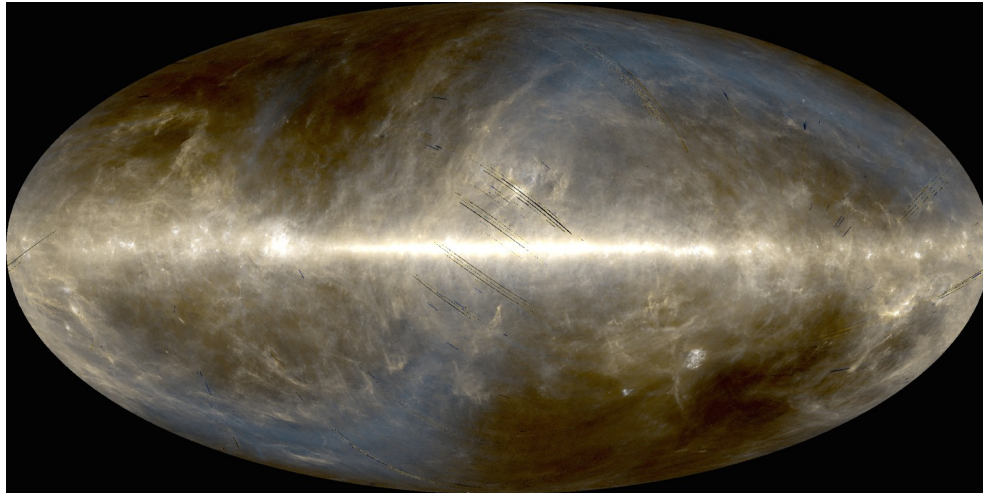


開口測光条件:
Aperture $r=90''$
Background $r=120-300''$

calの詳細はTakita+(2015) PASJ, accepted を参照して下さい。

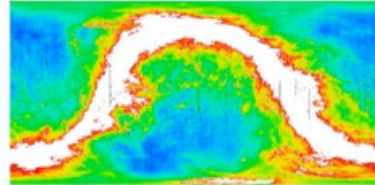
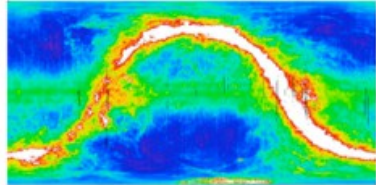
黄道光ダストバンド成分

公開画像



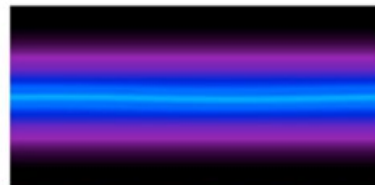
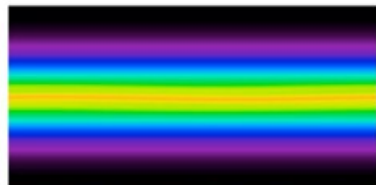
90 μm
original

140 μm
original



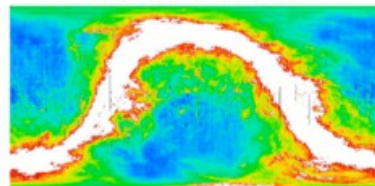
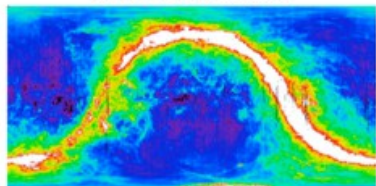
dust band

dust band

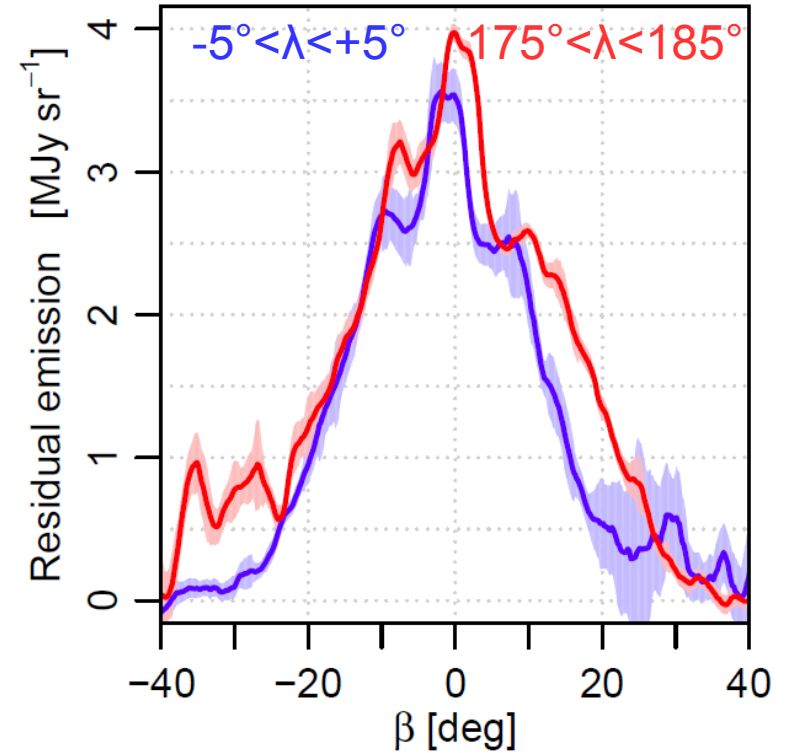


zodi-subtracted

zodi-subtracted



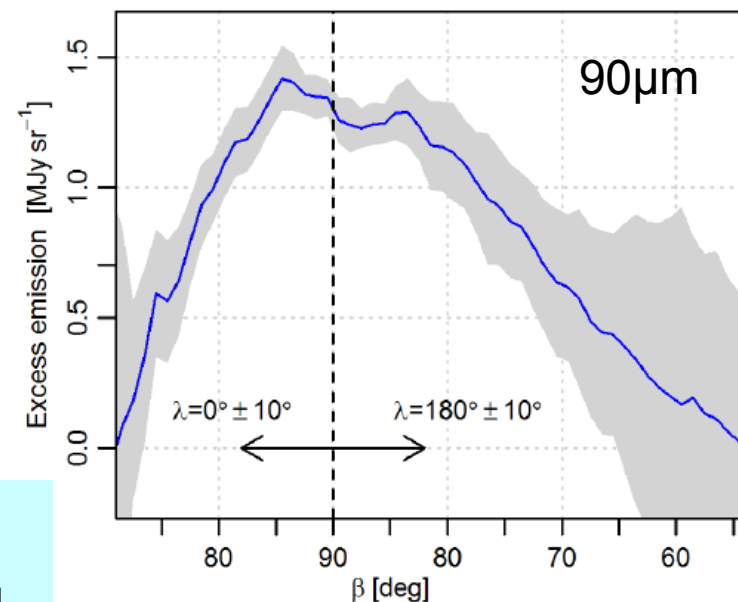
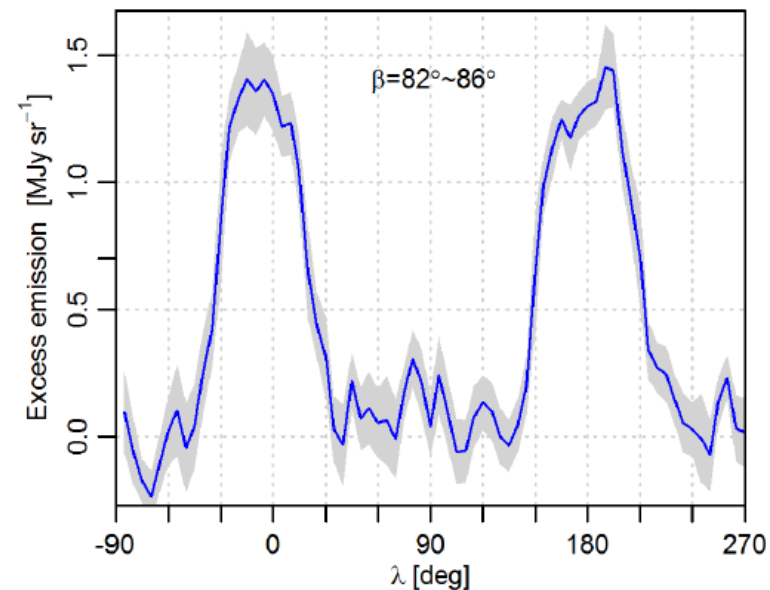
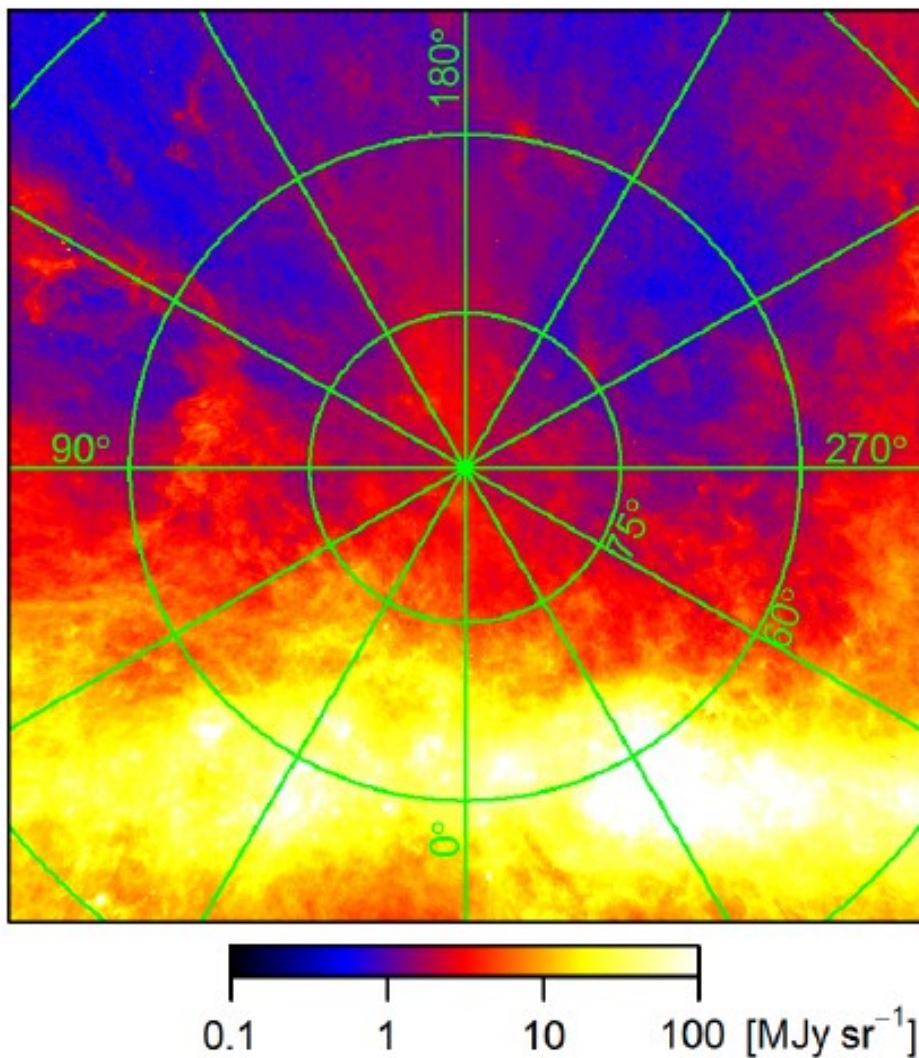
残存成分プロフィール例



残存成分差し引きエラー
<1 [MJy/sr]

詳細はポスターL14b(大坪他)
(投稿論文準備中)

北黄極付近の超過成分(地球照)



ピーク値: 2.2(65 μ m), 1.5(90 μ m),
0.13(140 μ m), 0.05(160 μ m) [MJy/sr]

移動天体(小惑星他)

天体マスク処理は行っていない。

主な天体の位置をリスト(Doi+ 2015, PASJ accepted)

Table 3. List of planets' and 55 major asteroids' positions that are scanned during the *AKARI* FIR all-sky survey observation.

Source name	Equatorial Coordinates			Galactic Coordinates			Ecliptic Coordinates		
	R.A. (J2000)	Dec. (J2000)		l	b		λ	β	
	h m s	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	
Philomela	0 23 20	13 10 12	113 27 40	-48 57 18	10 36 32	9 46 07			
Interamnia	0 45 40	9 05 33	121 37 09	-53 29 55	14 02 59	3 51 15			
Emma	1 46 58	11 12 19	144 56 03	-48 54 60	28 50 02	0 09 15			
Juno	1 52 50	5 19 21	150 37 56	-53 49 35	28 06 34	-5 51 41			
Aurora	2 02 41	-5 16 59	164 42 45	-61 46 38	26 37 40	-16 39 05			
Isis	2 11 22	8 30 20	154 58 10	-48 55 39	33 32 49	-4 27 20			
Wratislavia	2 15 31	13 19 50	153 00 36	-44 11 01	36 06 47	-0 14 36			
Fides	2 18 36	20 27 01	149 44 12	-37 27 58	39 09 44	6 14 08			
Bellona	2 36 59	9 14 59	162 17 52	-44 58 36	39 47 58	-5 47 36			
Thisbe	2 49 41	13 44 55	162 15 11	-39 30 26	44 08 06	-2 26 35			
Juno	3 03 34	28 51 30	155 25 07	-25 09 50	51 35 47	11 06 23			

その他データ全般についても Doi+ (2015) を参照下さい。

是非データをご活用下さい。

データ公開ページ

http://www.ir.isas.jaxa.jp/AKARI/Archive/Images/FIS_AllSkyMap/

Aladin(<http://aladin.u-strasbg.fr/>)でもデータが見られます