

BumpRecorder Web

Manual Book (Professional version) (2017.12.20)

Bumprecorder Co., Ltd.



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1 What is **BumpRecorder Web**?

When you measure the vibration of the running vehicle with the smartphone application **BumpRecorder** and upload it to our server, you can check it on the map in about 10 minutes. You can also create graphs and forms.

2 When to use it?

Traditionally, road surface measuring service took you several days to get result after measurement, but with **BumpRecorder Web** you can get results quickly!

By displaying data such as IRI and JRI on the map, you can check the properties of the road at a glance. You can also download the data as a text file.

You can easily collect daily data and analyze it and use it for formulating pavement plan.

3 Function

- You can check the IRI, Flatness sigma, Crack rate on measurement line, Step height, and Linearity sigma on a background map.
- You can compare old and new data on the map.
- You can check the data for each direction of travel.
- You can create a IRI graph of each distance mark.
- You can create a time series graph.
- You can download analysis data in text format

4 Basic Operation

Please access to the following URL link.

http://map.bumprecorder.com/

The top page can be divided into the following three areas.

- 1 Header navigation area
- 2 Map display area
- 3 Display data operation panel





Header navigation area

There are links to each function, login, logout button, etc.

Map display area

The data extracted by "Display data operation panel" will be displayed on the map in this area.

Display data operation panel

Background map	OpenStreetMap	,	¢ ي	Pro V Pale	ersion ×				
Search condition									
from 2011-03-0	1 to 2017-12	-19 Cor	mpare						
Managing by	Shared A		Muself		Cearch				
Weasured by	Shared Giviy	group O	Ny Son		Search				
Drawing data type									
GPS path Legend Legend Class 2.4~10 \$									
dini o ini o	dial o lat oback of the All Direction								
		arity Par Di	lection	÷					
Bump(2m)	🖯 (10m) 🛛 (15m	Bump	(Sprung)						
Area selection (Rectangle	Polygon	Line						
Position 1 Latitud	le Longit	tude							
Desilier 0									
Position 2 Latitud	Longit	ude	Clear						
Analyze Type His	togram at select	point	\$	Analyza	9				
	-				_				
Data List									
Search Result	Latest Japan	Latest G	lobal						
Date Time	Distance Com	nent	Lat from	Lon from	Country				
2017/11/25 06:38:35	179.4		35.72895	139.69	東京都豊島区				
2017/11/23 06:50:31	204		35.751	139.70	東京都板橋区				
2017/11/21 06:38:19	154.8		35.751	139.70	東京都板橋区				
2017/11/19 06:33:22	56.5		35.751	139.70	東京都板橋区				
2017/11/17 06:44:28	100.8		35.751	139.70	東京都板橋区				
2017/11/15 06:52:01	170		35.751	139.70	東京都板橋区				
2017/11/14 06:36:21	147.1		35.751	139.70	東京都板横区				
2017/11/13 06:32:51	175.8		35.751	139.70	東京都板橋区				
2017/11/10 00:34:29	174.1		30.101	130.00	東京都に新行				

- Change background map
- Filter by date or upload user
- · Compare old and new data
- Select data type
- · Analyze the selected range on the map
- · Switching domestic and international data list
- List data matching the search condition



5 Function Instruction

Change background map

You can change the background map. Please select from the drop-down list "Background map" at the top of "Display data operation panel".



We have prepared 8 kinds of background maps. Please use it according to your preference.

Search data by date and user



You can search data by measurement date or Measurer.

(1) In " Search condition (red frame)", please set the measurement date or measurer you want to search.

(2) Please click the "Search" button.

(3) The search result is reflected in the Data list. NOTES

• If the amount of data is large, it may take several minutes to be reflected in the data list

• In the initial display, data from all the Measurer is displayed for the entire period in the Map display area.



Check the latest data uploaded in Japan and abroad

Data List								
Search Result	Latest Jap	oan Latest	Global					
Date Time	Distance	Comment	Lat from	Lon from	Country			
2017/11/25 06:38:35	179.4		35.7289	5 139.69	東京都豊島区			
2017/11/23 06:50:31	204		35.751	. 139.70	東京都板橋区			
2017/11/21 06:38:19	154.8		35.751	. 139.70	東京都板橋区			
2017/11/19 06:33:22	56.5		35,751	139.70	東京都板橋区			

You can check the latest data uploaded in Japan and abroad by switching tab of "Data List"

Compare old and new data

You can compare old and new data.



Click the "Compare" button on the "Display data operation panel".



You can narrow down and compare each map. If you click and drag on one of the maps, the other map will move in the same way.

If you return to the original page please press the "normal page" button at the top right of the screen.



By selecting "Snow removal situation", you can compare snow removal situation on 2 maps.



Display the traveling route of the data on the map

You can check the traveling route of the data on the map.

By clicking on the data from the "Data List" at the "Display data operation panel", you can display the route on the map.





Change the data type displayed on the map

You can change the data displayed on the map for each data type, such as IRI and flatness.

The data type can be selected from six types of "IRI", "JRI", "Crack", "Linearity", "MCI", "PCR". In addition, you can specify the "Legend Class " and "Travel Direction".



With this function, you can overlook various analyzes on the map.





"Bump" represents the height of the step with the triangle mark,

"Bump(Sprung)" represents the amount of vertical displacement above the spring with triangle mark.

Select the area you want to analyze from the map



(1). Rectangle

When you click two points on the map, the point information is automatically entered.





When you click the "Analysis" button, various data analysis is performed within the rectangle area.



(2). Polygon

You can connect the click points on the map and draw a polygon area.

Polygon will be drawn when you double click at the end.

Area selection	Rectar	ngle Polygon	C Line	Modify
Position 1 La	titude	Longitud	-	
Position 2 La	ititude	Longitude	Clear	
Analyze Type	Histogram a	t select point	\$	Analyze
				- ふじ

When you click the "Analysis" button, various data analysis is performed within the polygon area.

In the example below, To draw a polygon, click $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5$, and double click on 6 at the end.



(3). Line

You can connect the click points on the map and draw a line area.

Line will be drawn when you double click at the end.

Area selec	tion 🔾 Rec	tangle 🔘 Polygo	n 💿 Lin	Modify	
Position 1	Latitude	Longitude		Save	Load
Position 2	Latitude	Longitude	Clear	Distance=513	im
Analyze Ty	Pe Histogram	n at select point		Analyze	

When you click the "Analysis" button, various data analysis is performed along the line.

In the example below, To draw a line, click $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$, and double click on 5 at the end.





Select analysis type and create graph and form



When you do data analysis, first of all, select "IRI", "JRI", "Crack", "Linearity", "MCI", or "PCR" from "Drawing data type".

Histogram at select point



Select "Histogram at select point" from "Analyze Type" and click the "Analysis" button to automatically create a histogram.

The created graph can be displayed on a large screen by pressing the "Expand" button on the upper right.

A histogram can be created by common operation of "Rectangle", "Polygon", and "Line".

Time Series at select point



Please select "Time Series at select point" from "Analyze Type" and click the "Analysis" button to automatically create a time series.

The created graph can be displayed on a large screen by pressing the "Expand" button on the upper right.

A histogram can be created by common operation of "Rectangle", "Polygon", and "Line".



Data download

Search condition	n	
from 2011-0	3-01 to 2017-12-19 Compare	
Measured by	Shared My group My self	Search
Analyze Typi , Graph	Histogram at select point fine Series at select point Distance based graph between select p Distance based Table between select p Data download	points(beta) points(beta)

You can only download data uploaded by "My group" or "My self".

Please select "My group" or "My self" in "Search condition". Then select "Data download" from "Analyze Type" and click the "Search" button to download the data.

You can use this function in common operation of "Rectangle", "Polygon", and "Line". NOTE

• It may take several minutes to start downloading.

Distance based graph between select points (Rectangle only)

Area select	tion 💿 Recta	angle O Polygor	n 🔾 Lin	e
Position 1	35.77408	139.714725		
Position 2	35.77455	139.715964	Clear	Distance=123m
Analyze Ty	pe Distance b	ased graph betwee	en select	Analyze

Only "rectangle" is supported for this function.



Please select the start and end points on this map. Then select "Distance based graph between select" from "Analyze Type" and click the "Analyze" button to create the graph.

Distance based Table between select(Rectangle only)

Area selectio	on 💿 Rect	angle 🔘 Polygo	n 🔾 Lin	е
Position 1	35.773671	139.713507		
Position 2	35.774737	139.716436	Clear	Distance=289m
Analyze Type	Distance b	ased Table betwee	en select	Analyze

A

Only "rectangle" is supported for this function.

Please select the start and end points on this map. Then select "Distance based Table between select" from "Analyze Type" and click the "Analyze" button to create the graph.



0 0	000											
Image:												
	BumpRecorder Web : Pavement big data on your hand											
IRI Distance Base Table												
Dist [m]	Latitude	Longitude	Avg [mm/m]	2017 09/10	2017 09/10	2017 09/10	2017 06/06	2017 05/21	2016 05/09	2014 06/01	2014 02/25	
0	35.775831	139.708496	2.2	2.1	0.9	1.7	2.5	2.0	3.9	2.3	2.3	
23	35.775888	139.70874	3.2	2.9		3.2	3.3	3.4	3.4			
					0.0	18	24	2.2	2.8		2.8	
			abb	revi	atio	n						
398	35.776983	139.712647	1.8	1.5								_
425	35.777117	139.712891	2.9	2.7	3.6	4.0	3.5	3.3		1.6	1.9	
442	35.77722	139.713036	3.4	3.0	3.5	3.6	4.0	3.5		3.5	2.9	
Leger	Legend											
0				2.8					<	=5.7		

Please wait for a while until the form is created. Zero is light blue, mean value is yellow, and values twice the average are displayed in red.

Create and download statistical data along the route (Line only)

Based on the data measured on a daily basis, you can create statistical data such as average value or median in monthly / quarterly (3 months) / annual. Of course you can download it in svg format.



You can also create a contour chart like the one on the left.

from 20	11-03-01 t	0 2017-12-19	Compare		
Measur	ed by OSha	ared 💿 My grou	up OMy self		Search
Drawing d	ata type	3			
GPS	path 🗹 Lege	end Legend Cla	ass 2.4~10 💲		
IRI (JRI Cra	ick Linearity	All Direction	\$	1
	PCR				
MCI Bump	PCR (2m) (10r	m) 🗌 (15m) 🗌	Bump(Sprung)		
MCI Bump	PCR (2m) (10r	m) 🗌 (15m) 🗌	Bump(Sprung)		
MCI Bump Area select	PCR (2m) (10r (10r	m) (15m) (Bump(Sprung)	e Modi	fy
MCI Bump Area select Position 1	PCR (2m) (10r tion Re Latitude	m) (15m) c ectangle Po	Bump(Sprung)	e Modi	fy ve Loa
MCI Bump Area select Position 1 Position 2	PCR (10) (10) (10) (tion Re Latitude Latitude	m) (15m) (ectangle Po Longitude	Bump(Sprung)	e Modi Sa Distance=	fy ve Loar

If you use the PhotoReport at the same time, you can draw the repair time with the green circle mark on the contour chart. (1) Please check "My group" or "My self", and select a Line by area selection.

(2) Please click on "Data download" in the "Analyze Type"



(3) When you select "Data download", "Download type" will be displayed, so select monthly statistical data etc.





(4) Please click "Analyze" button to start downloading.

NOTES

- Depending on the distance of the route and the amount of data it may take several minutes to download.
- It is data in square mesh unit. Please see the sample image below.

	Ba	sic statis	stics						Sta	atis	tics	for e	each	Ind	icat	or		
-						ALL.	-									iri	-	-
<u>meshsi</u>	ze. lat1 p010 p025	lon1 lat2 p050 p075	lon2 l p090 max	speed no avg sd	<u>dist f</u>	rom min	dist to	axg p825	<u>sd</u> p050	n p075	min p090	p010 max	p025 avg	p050 sd	p075 n	p090 min	max p010	avg p025
2	35.714208	139.729065	35.714011	139.729162	23.6	22.3	0	7.8	31.3	1.5	0.4	3	1.1	1.2	1.3	1.6	1.7	1.7
2	35.71401	139.729162	35.713812	139.729263	23.7	22.41	1	31.4	55.1	1.2	0.0	3	1.1	1.1	1.1	1.1	1.2	1.2
-	3 0.6	0.6 0.6	0.6 0.7	0.7 0.7	9.5	0	3	9.5	9.5	9.5	9.6	9.6	9.6	9.6	100	0	3	100
2	35.713812	139.729263	35.713614	139.729367	23.9	22.6	2	55.1	79	1.5	0.1	3	1.4	1.4	1.4	1.5	1.5	1.6
	3 0.8	0.8 0.8	0.8 0.8	0.8 0.8	9.5	0	3	9.5	9.5	9.5	9.5	9.5	9.5	9.5	100	0	3	100
2	35.713614	139.729368	35.713416	139.72947	23.8	22.73	3	79	102.7	1.4	0	3	1.4	1.4	1.4	1.4	1.4	1.4
2	3 0.5	0.5 0.6	0.0 0.0	0.6 0.7	9.5	22 02	3	9.5	9.5	9.5	9.5	9.5	9.5	9.6	100	1 4	3	100
2	35./13410	139./294/	35./13218	139.729509	23.7	22.82	4	102.0	120.4	1.5	0.2	3	1.4	1.4	1.4	1.4	1.0	1.0
2	35,713217	130.72057	35,71302	139.729671	23.8	22.83	5	126.5	150.2	1.7	0.3	3.5	1.4	1.5	1.6	1.8	1.0	1.0
-	3 0.6	0.6 0.6	0.6 0.7	0.7 0.7	0.5	22.05	3	0.5	9.5	9.5	0.5	9.5	0.5	0.5	99.6	0.6	3	08.0
2	35,713010	139,729671	35,712821	139,72977	23.7	22.78	6	158.3	173.9	1.4	0.1	3.5	1.3	1.3	1.4	1.4	1.4	1.5

Ba	asic Statistics				
meshsize	Mesh size				
Lat1,lon1,lat2,lon2	Start point coordinates and				
	End point coordinates of the				
	section				
1	Section length[m]				
speed	Average speed in section[m/s]				
no	Serial number				
dist_from, dist_to	Distance from the origin of				
	the route [m]				

Statistics for each Indicator					
avg	Avrage				
sd	Standard				
	deviation				
n	Number of data				
min,max	Minimum,				
	Maximum				
p010~p090	Percentile value				

iri : IRI[mm/m]
jri : JRI[mm]
crack : Crack[%]

linearity : Linearity[mm] mci : MCI pcr : PCR

At the same time, the contour map is saved in svg format.

If you use the PhotoReport at the same time, you can draw the repair time with the green circle mark on the contour chart.





Download upload data

This function is available when logging in as a user with group administrator authority.

After logging in please click "Data Download" -> "Data Download Request" in the header navigation. Then the data uploaded by the user of your group will be listed.

BumpRecorder Web for BumpRecorder Data	Download						
8/1	JumpL	Giobal total3					
	ler	Data Download					
		Data Download Request					
		Request Result					

 in [[@]] + = rep RemoRementer Wei 	humprecorder co	Manager Carls	Oran Kal	549-159				Photofactored	Oter	Pres Alte	mathati san ti	er Land	
Mesureme	ntData												1
All check													1
Datetime	Feedalitude	Festionphate	Distance	Comment	export								I .
2016/06/15 17:00:58	42,852208	141.512757	38.11	2.0	Tes Des	Analysis Data							1
0 2016/06/15 15:12:04	43.403081	141.421008	63.94		Res Date	Analysis Data							1
0 2016/09/15 14:00:08	43.827555	141.472945	60.12		Res Data	Analysis Data							1
0 2016/09/15 11.57.40	43,214985	141.529896	96.17		Res Date	Analysis Data							1
0 2010/09/15 11:21:20	43.218679	141,579119	3.82		Res Date	Analysis Date							1
0 2016/09/15 18:00:57	43.218992	141.579127	20.26		Res Date	Analysis Date							1
0 2016/06/15 08:08:23	43.219969	141,580681	44.92		-	Anatoria Data							1
0 2016/09/15 08:45:32	43.219091	141,581283	0.68		-	Anatoria Data							1
0 2016/06/15 08:00:35	43.213192	141.529916	6.07			Analysis Date	_						
0 2014/06/15 07:05:03	43.188732	141.444738	0.00			Annual Control							
0 2016/06/14 15:45:34	43,218924	141.575203	13.25			And and American	exp	ort					
0 2010/09/14 12:10:21	43,244808	141.347905	26.62			Annual Cont	· ·						
0 2010/09/14 11/21/00	43.244858	141.367934	0.38			and the second second							
0 2010/06/14 10:22:28	43,213058	141.829291	17.12			And and a second second	R	aw D	ata		Anal	ysis [Data
0 2016/06/06 12:20:34	14,853587	96.167218	1.45	12224876	-	Concession of the local division of the loca							
C NUMBER INCOME	14 42420			Laboration and the		A support to a		-	-	-	_	_	
	14 Kinese		1.00	Laboration and the laboration of the laborationo	100 000	Analysis Data							
0 00000001201158	18.8.0004		1.02		See Deb	Analysis Data							1
0 2016/06/06 08:16:12	18.835028	90.110187	1.45	2.12.4-800	Res Date	Analysis Data							1
0 2016/00/07 08:57:29	43.133365	141.441051	296.53		Res Data	Analysis Date							1
2015/00/17 20:23 18	35.815254	139.765568	2.34		Res Data	Analysis Data							1

This is the data download page. They are listed in ascending order.

You can download two kinds of data.

"Raw Data": You can download measurement data.

"Analysis Data": You can download IRI data.

A	ll check							
	Datetime	Firstlatitude	Firstlongitude	Distance	Comment	export		
V	2016/09/15 17:00:59	42.952208	141.512757	33.11	左前	Raw Data	Analysis Data	
•	2016/09/15 15:12:04	43.403081	141.431003	63.84		Raw Data	Analysis Data	
	2016/09/15 14:00:08	43.827555	141.472445	60.12		Raw Data	Analysis Data	
Abridgement								
	2016/09/14 10:32:29	43.213058	141.529291	17.12		Raw Data	Analysis Data	
ø	2016/06/06 17:35:54	16.853587	96.167019	1.45	パラミからホテル	Raw Data	Analysis Data	
	2016/06/06 13:04:27	16.83975	96.180832	2.69	ミャンマーKOEIからパラミ	Raw Data	Analysis Data	
	2016/06/06 12:41:58	16.835664	96.176953	1.07	ミャンマーKOEIからパラミ	Raw Data	Analysis Data	
≤	2016/06/06 08:16:12	16.833328	96.176197	1.45	ミャンマーKOEI	Raw Data	Analysis Data	
	2016/02/27 09:57:29	43.033365	141.441051	288.53		Raw Data	Analysis Data	
	2015/02/17 23:23:18	35.815264	139.765593	2.34		Raw Data	Analysis Data	

How to download multiple data at once

You can also download multiple data in batches.

Please check the checkbox to the left of the data and click "Checked Data Export". Please wait until the download starts.



●	⊖ ▶ 🖄 + 🚢 map.	bumprecorder.co	m /bump_data_hea	iders/showLi	st?lang=eng	BumpRecorder Web : Paveme	nt big data on y
Bu	mpRecorder Web	for BumpR	ecorder Data	Download			
			Data	a Download	Request		
MesurementData			Req	uest Result			
A	ll check						
	Datetime	Firstlatitude	Firstlongitude	Distance	Comment	export	
	2016/09/15 17:00:59	42.952208	141.512757	33.11	左前	Raw Data Analysis	Data

You can download on "Request Result" page.

Please click "Download" in the status column on the download page to start the download. If the size is large, it is divided into multiple files. Please click each to download.

	Data Download		PhotoReport Other F	tee App makkushi -san, Hello Logout	
Request Result					
Export Datetime	type	status			
2017-12-19 16:16:34	Rev Data	Download			
2017-12-19 16:15:31	Rev Data	Download			
2017-12-19 16:15:06	Play Data	Download			
2017-12-19 10:14:19	Rev Data	Download			
2017-12-19 16:14:02	Rev Data	Download			
2017-12-19 10:13:53	Rew Data	Download			
2017-12-19 16:13:22	Rev Outa	Download			
Reque	est Result			•	
Export Datet	ime		type	status	
	6:16:34		Raw Data	Download	
2017-12-19 1					
2017-12-19 1 2017-12-19 1	6:15:31		Raw Data	Download	
2017-12-19 1 2017-12-19 1 2017-12-19 1	6:15:31 6:15:06		Raw Data Raw Data	Download Download	
2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1	6:15:31 6:15:06 6:14:24		Raw Data Raw Data Raw Data	Download Download Download	
2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1	6:15:31 6:15:06 6:14:24 6:14:19		Raw Data Raw Data Raw Data Raw Data	Download Download Download Download	
2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1	6:15:31 6:15:06 6:14:24 6:14:19 6:14:02		Raw Data Raw Data Raw Data Raw Data Raw Data	Download Download Download Download Download	
2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1	6:15:31 6:15:06 6:14:24 6:14:19 6:14:02 6:13:53		Raw Data Raw Data Raw Data Raw Data Raw Data Raw Data	Download Download Download Download Download Download	
2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1	6:15:31 6:15:06 6:14:24 6:14:19 6:14:02 6:13:53 6:13:53 6:13:22		Raw Data Raw Data Raw Data Raw Data Raw Data Raw Data Raw Data	Download Download Download Download Download Download Download	
2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1 2017-12-19 1	6:15:31 6:15:06 6:14:24 6:14:19 6:14:02 6:13:53 6:13:22 5:58:00		Raw Data Raw Data Raw Data Raw Data Raw Data Raw Data Raw Data	Download Download Download Download Download Download Download	

Please wait for a while if the status column is "under preparation" and press the "reload" button and double check the progress.

When the status column is "Download", you can download them.



About calculation result

Sample

1431476406033	2	314168	1144522	35.77108	139.712233	35.771112	139.712401	15.5	7.29	8.61
1431476501485	2	314172	1144530	35.77148	139.713347	35.771672	139.713313	21.5	6.03	3.55
1431476501485	4	314172	1144528	35.77148	139.713347	35.771672	139.713313	21.5	6.03	3.55
1431476501485	8	314168	1144528	35.77148	139.713347	35.771672	139.713313	21.5	6.03	3.55

devicetime	Time indicated by OS Epoch seconds UTC [ms]					
meshsize	meshsize	meshsize				
latcode	Latitude mesh number	latcode				
loncode	longitude mesh number	loncode				
lat1	Latitude on the origin side of the IRI calculation section					
lon1	Longitude on the origin side of the IRI calculation section					
lat2	Latitude at the end point side of the IRI calculation section					
lon2	Longitude on the end point side of the IRI calculation section					
1	Section length [m]					
speed	Average speed in section [m / s]					
iri(jri)	IRI(JRI)[mm/m]					

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