



# YOUR HANDY SOLARCAN INSTRUCTION BOOKLET.

Issue Eight | Winter-Summer 2022



# CONTENTS

- All Around the World Page 3
- Setting up your Solarcan Pages 4&5
- Science Behind your Solarcan Pages 6&7
- Pictures from the Community Pages 8&9
- Collecting your Solarcan Pages 10&11
- Developing your Solarcan Pages 12&13
- Tips and Tricks Pages 14&15

Sam Cornwell



# ALL AROUND THE WORLD

## **Why do we journey closer to the equator during the winter time?**

Usually, it's to get more sun, and catch a respite from the dark, cold and bleak months. It might not be immediately apparent to the traveller, but this is because the Sun's altitude from locations closer to the equator is always higher in the sky, meaning more of its precious energy can reach the ground and provide that much needed warmth and light.

The Sun's altitude is what we are recording with every Solarcan that is installed around the world. The remarkable difference we see in each image clearly demonstrates how the location we are positioned impacts the path we see the Sun take. The best examples of this are typically short exposures (say a week or so) around the winter solstice when the Sun is at its lowest point.

We undertook an experiment with two

Solarcan, one placed in Scotland, the other off the west coast of Morocco, to fully illustrate how the difference in latitude alters the appearance of the Sun's path in the resulting image. Both were installed facing due South and orientated vertically. Separated by a whopping 26 degrees and exposed for the same duration in the first week in January, we combined both and were able to compare.



• *Perhaps travel agents could use this in their brochures...*

While the winter Sun in Scotland skims the horizon, the more southerly placed Solarcan shows the solar path arcing its way higher through the sky as expected. The difference is stark, almost extreme to an extent - reminding us that as the year progresses to Summer the top path will begin extending beyond the top of the frame. We've seen many fantastic efforts by the community to angle their Solarcan up to compensate for this.

Over the years we've learned through the community that Solarcan is more than just a camera; it's an experiment that helps people to understand the world we live in. Every result & install has a story to tell and a secret to share to make us brighter and wiser. This particular one just happens to be "take a vacation."

# SETTING UP YOUR SOLARCAN

1



Find a suitable location facing the Sun with a good view of the sky and horizon. The higher the better, but don't do anything too risky.

2



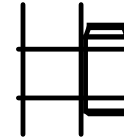
Seek permission for the location you intend to install your Solarcan. A silver tube mounted in a public location can spook the authorities.

3



Consider when to install your Solarcan. Ideal times are the summer or winter solstice as the Sun will be at its highest or lowest point.

4



Using the supplied cable ties, mount the Solarcan vertically to something sturdy. Drainpipes, railings or fence posts are handy for this. Be careful not to tighten the cable ties too much - you don't want to squash it.

Can't find your cable ties? Look in the Solarcan lid

5



Make sure your Solarcan is fixed in place. It's likely to experience many different types of weather and curious animals (including humans).

6



When you're ready, carefully remove the black label covering the pinhole and let the magic begin

7



Place the black label on the end of your Solarcan for safe keeping and mark a date in your calendar for retrieval.

8



Take a photograph on your phone of where you left it. If you plan to share the photograph online use the hashtag #Solarcan. Gaffer tape is your friend!

**NB. Check on your camera every once in a while.**

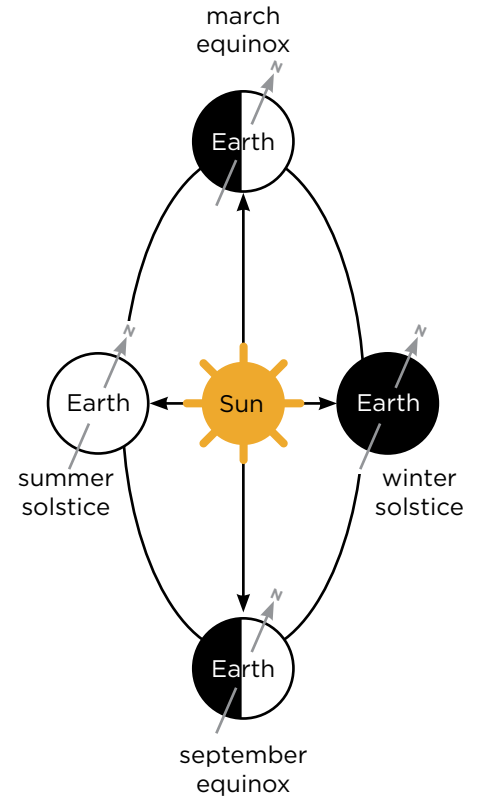
# SCIENCE BEHIND YOUR SOLARCAN

A Solarcan is as much an experience as it is a camera. Learning the science behind how it works and understanding its simplicity can be a real eyeopener.

## Why does the sun's path look like that?

As we observe the Sun in the daytime sky we can see that it rises in the east and sets in the west with it being highest around midday. This isn't because the Sun is moving, it's because the Earth is spinning. Once every 24 hours. The reason it rises and sets and doesn't just travel in a straight line through the sky is because Earth is tilted on its axis. 23.5 degrees to be exact.

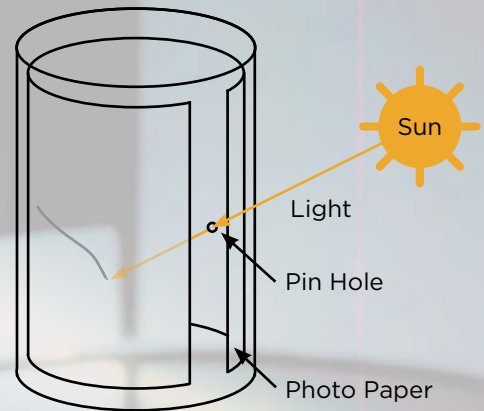
This tilt also happens to be what causes the seasons we have throughout our Earth year. As we travel in Space around the Sun different parts of Earth are exposed to the Sun's rays more than others, giving us our Summer and Winter. During the hottest season, summer, the Sun is more direct and higher in the sky. Its highest point is during the summer solstice on the 21st June. The lowest point is the winter solstice on the 21st December.

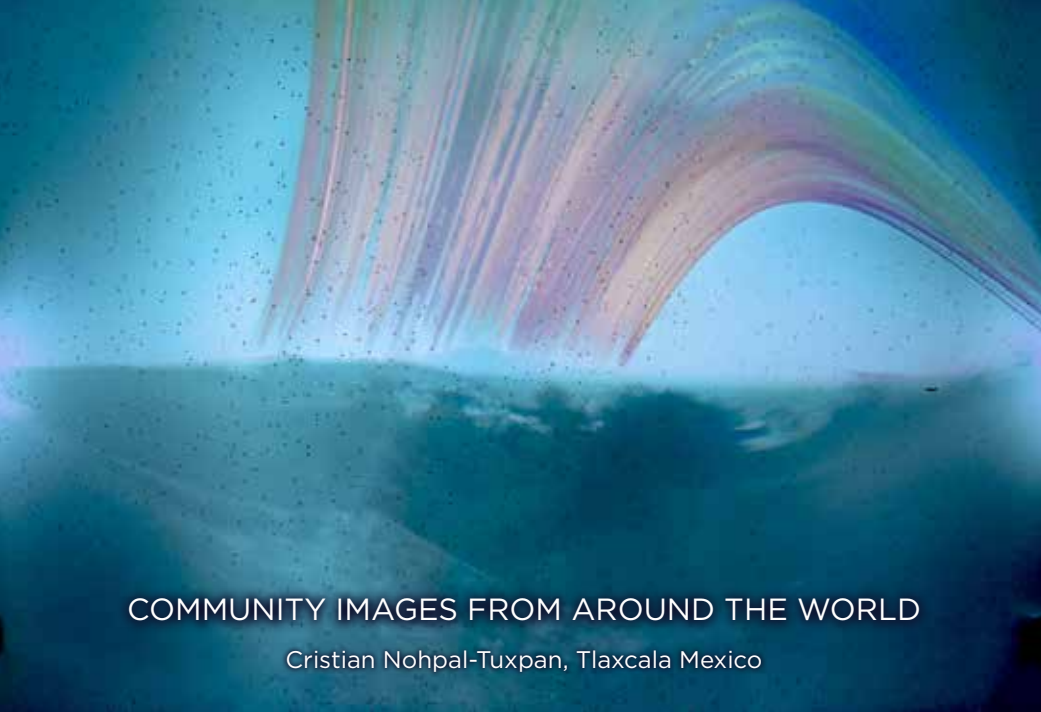


### How does a Solarcan capture the Sun's light?

Inside the Solarcan is a single sheet of light sensitive photographic paper. Once exposed to light a chemical reaction happens to the emulsion and it begins to change colour. Traditionally photographic paper captures a latent image that is not visible to the naked eye and requires chemical processing, however with a Solarcan the light from the Sun is so powerful that as it passes across the paper it darkens visibly and no chemicals will be required to 'develop' the image.

To capture the image a simple pinhole is made on the side of the Solarcan. This is the camera lens. Yes, it may be just a very tiny (0.5mm) hole, but it enables a readable image to form internally. As light can only pass directly through the pinhole in one direction and not scatter out, the sun's path appears as sharp.



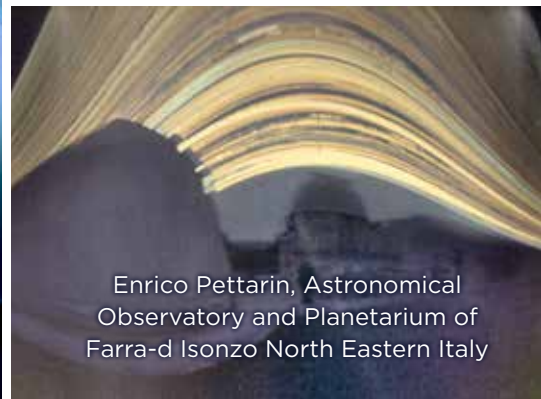


COMMUNITY IMAGES FROM AROUND THE WORLD

Cristian Nohpal-Tuxpan, Tlaxcala Mexico



Dani Bacon,  
Nottingham UK



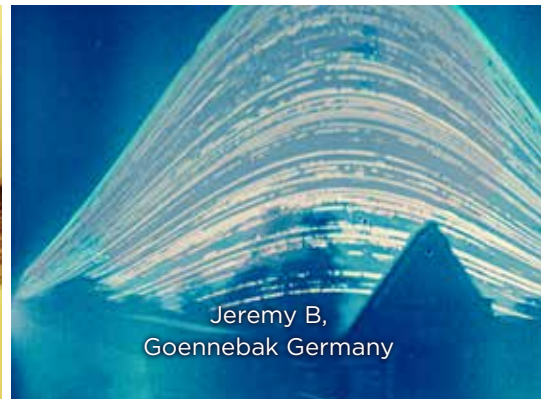
Enrico Pettarin, Astronomical  
Observatory and Planetarium of  
Farra-d Isonzo North Eastern Italy



Eran Pinhasov,  
Zichron Yaakov Israel



Jamie Millington,  
Manchester UK



Jeremy B,  
Goennebak Germany





Kevin Smith, Northamptonshire UK



Kirill Jerdev, Bath UK



Larry P Holdaway, Ventura CA USA



Randy Weaver, Georgia Atlanta USA



Nicholas Cook, Nottingham UK



Mato Peto, Prague Czech Republic



Spencer Salter, Solihull UK



Sarah, Oldham UK



Tim C, Hayling Island UK

# COLLECTING YOUR SOLARCAN

1



Prior to removal cover the pinhole using the black tab you saved to end the exposure and stop any unwanted light passing through.

2



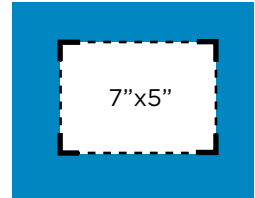
Using a small flat head screwdriver, release the cable ties (to save for future reuse) and retrieve your Solarcan, placing it back into its original postal tube. Clear up any rubbish and leave the location as you found it.

3



Find a room to work in with subdued light. You will be removing the paper from your Solarcan and handling it whilst it is still sensitive to light. Direct exposure from the Sun will quickly ruin any image. Complete darkness isn't necessary; a small, shaded 60 watt lamp will be fine.

4



Prepare a scanner for use. Set to colour and perform a prescan on a 7"x5" piece of paper. This avoids light hitting the sensitive paper twice.

5



Using a standard food tin opener remove your Solarcan's lid (end with the ring pull) carefully. If you're under 16 ask an adult to supervise.

6



Retrieve the exposed paper from inside the Solarcan and quickly place it facedown onto the scanner in place of your guide paper and begin a high res scan.

7



Once scanning is finished immediately return the paper to the Solarcan and cover. As scanners use light, you'll only be able to do this process a few times before the image is unusable.

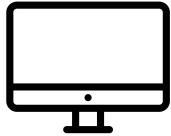
8



Using any basic photo editing software import the scan and invert the image for your final result. Further improvements can be made using the 'curves' tool.

# DEVELOPING YOUR SOLARCAN

1



## Recommended software:

- Photoshop
- Lightroom
  - GIMP
- Many other phone editing apps are available, we recommend 'Snapseed'.

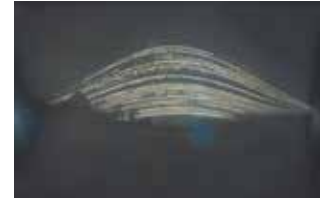
2



## Invert colours:

- The first and most important part of the digital development process is inverting the colours of your Solarcan image. This will turn the darks, light and the whites black. Above is an example of a straight inversion.

3 A



## The edit: Balance

Adjust the white balance and tint of your inverted Solargraph in small increments until you feel the colours are evenly distributed. Not too blue, not too yellow, just right.

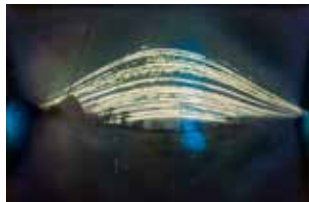
3 B



### The edit: Curves

Onwards to 'curves' and highlights & lowlights. Here you can add a bit of your punch to your image by adjusting your straight line curve to an 'S' shape, and increasing contrast. It can be useful to use the highlights and lowlight sliders to even out the brightness across your image.

3 C



### The edit: Clarity

Clarity & Dehaze tool. Perhaps the most controversial of photo editing tools, however for Solargraphy they can really finish off the picture with a bit of intelligent sharpening.

3 D



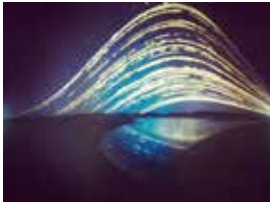
### The edit: Cropping

Crop for ultimate sweetness.

# TIPS AND TRICKS

Difficulty rating. \* Easy, \*\* Moderate, \*\*\*Expert

1



## \*Reflections:

Anything that's shiny enough to reflect bright sunlight in the frame could possibly mirror the Sun's path. This could be a window, a car or even a body of water.

2



## \*\*\*More Pinholes:

By adding additional pinholes to your Solarcan you could end up with repeater sun trails.

3



## \*\*Water Ingress:

Just the right amount of water over the right amount of time will cause dramatic imperfections to your Solarcan image. However you must be careful as too much can destroy it all together.

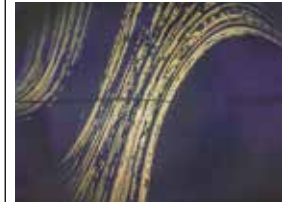
4



## \*Interesting Window:

Consider placing your Solarcan indoors looking through a window with a direct view of the Sun's path. Patterns on the window could lead to an interesting result.

5



## \*\*Mounting angle:

You don't have to position your Solarcan vertically, that's just to achieve a standard landscape image. If you change the orientation all sorts of strange patterns can occur. The Solarcan that created this image was facing due South for 6 months horizontally.

6



**\*\*Non-fixed:**

Who says your Solarcan even has to be fixed? By hanging a Solarcan from a swing, these ethereal lines were created from the sun's path.

7



**\*\*In a Car:**

A difficult but audacious stunt is to fix your Solarcan to the inside of a car window. The result can be incredibly abstract.

8



**\*\*\*Solar Eclipse:**

If you can arrange the Moon to pass in front of the Sun for just a few minutes, a Solarcan exposing over a single day can capture the event. Photographer Don Hladiuk did just that.

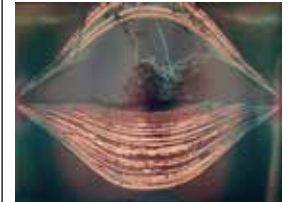
9



**\*\*\*Double exposure:**

After you've finished exposing for one period of time, use the same Solarcan to expose in a different location. This single image was captured in London & Verona!

10



**\*Flip:**

Instead of taking your Solarcan down on the Solstice, turn it upside down and carry on capturing rays inverted!



Solarcan is more than just a camera, it's an experience. There's an online community out there ready to help, advise and learn just like you. Join in and be part of the conversation. #Solarcan

Solarcan is manufactured in Hawick in the Scottish Borders.

[info@solarcan.co.uk](mailto:info@solarcan.co.uk)