Windfarm

Designed by David Mitchell

Windfarm is a flat tessellation folded from a large square that has been sub-divided into a number of smaller squares and half squares by slits. The result is an intricate square field covered with sixteen rotors, each of which rotates in the opposite direction to its neighbour.
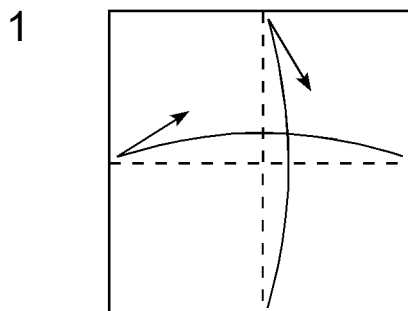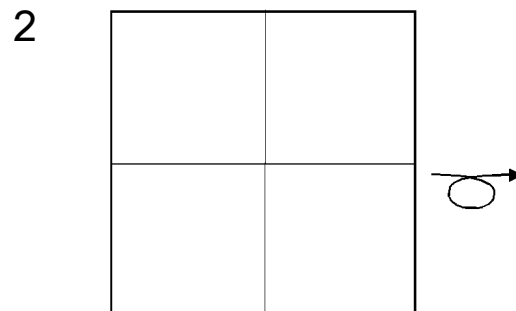
Windfarm was created in 1996.

The diagrams first show you how to fold a single rotor from a small square then how sixteen rotors can be folded from a larger one using the same method. There is, of course, no need to limit yourself to sixteen.

Folding practice

You should begin by making a single motif from a small square, which can be of any kind of paper. If you are using irogami begin with your paper arranged white side up.
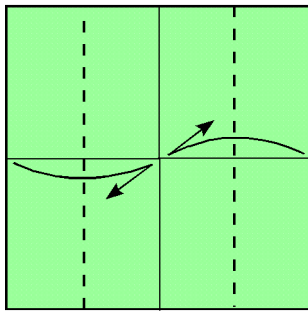
1

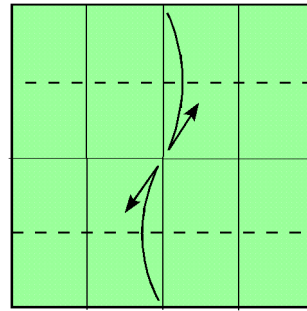1. Fold in half edge to edge, then unfold, in both directions.
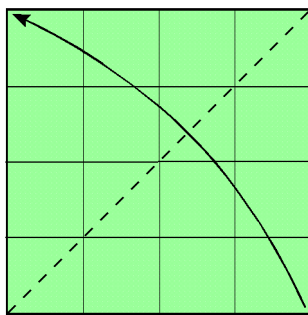
2

2. Turn over sideways.

3

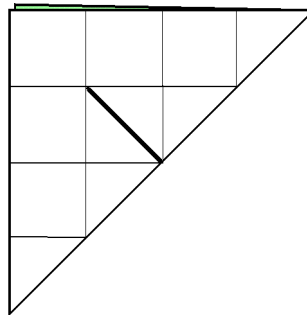3. Fold both outside edges into the centre crease, then unfold.

4

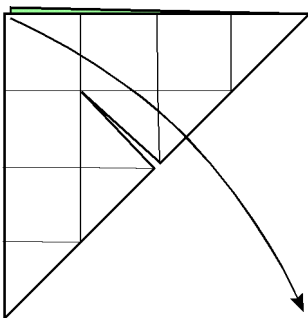4. Fold the top and bottom edges into the centre, crease, then unfold.
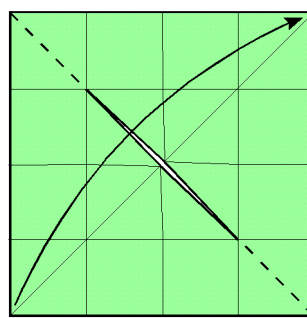
5

5. Fold in half diagonally.

6

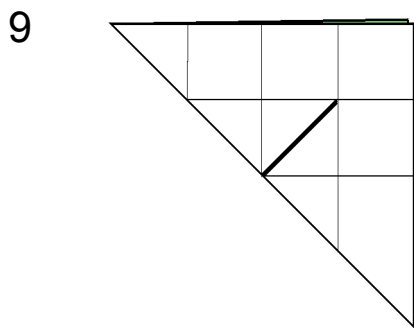6. Make a cut through both layers in the position marked by the thick black line.
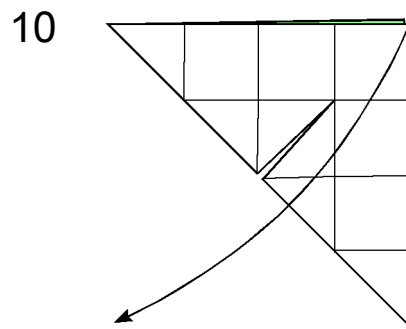
7

7. Open out the fold made in step 5.

8

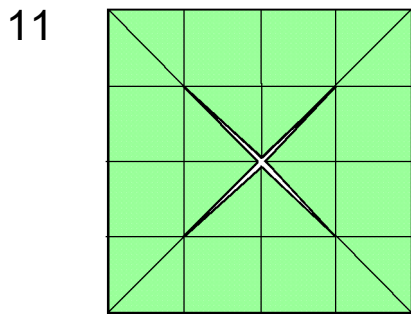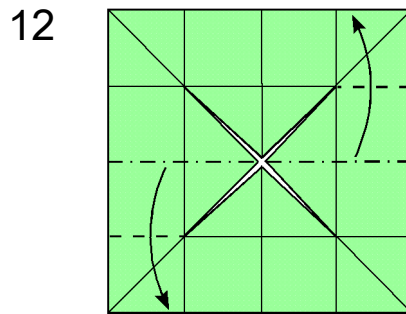8. Fold in half diagonally in the alternate direction.

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9

9. Make a cut through both layers in the position marked by the thick black line.
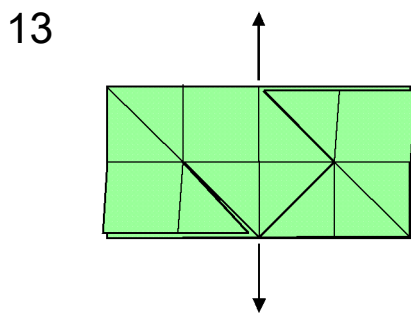
10

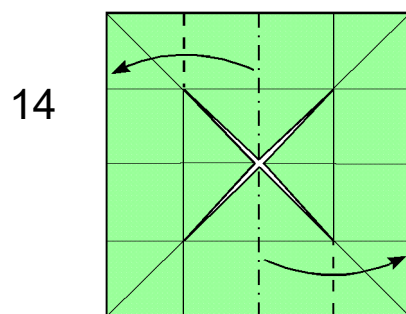10. Open out the fold made in step 8.

11

11. You should now have an X shaped slit in the centre of the paper.

12

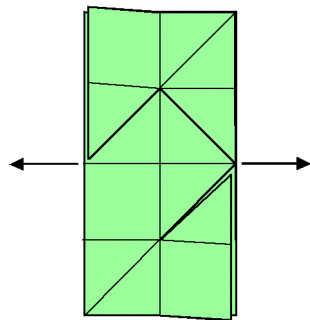12. Make these two folds simultaneously. The result should look like picture 13.

13

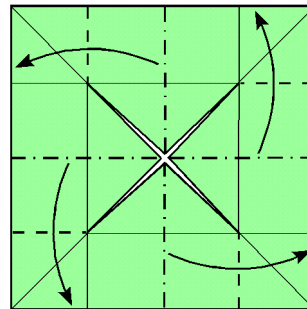13. Flatten, then pull out as shown to undo these folds.

14

14. Make these two folds simultaneously in exactly the same way. The result should look like picture 15.
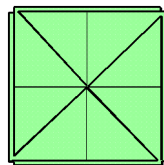
15

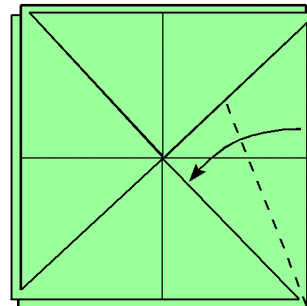15. Flatten, then pull out as shown to undo these folds as well.

16

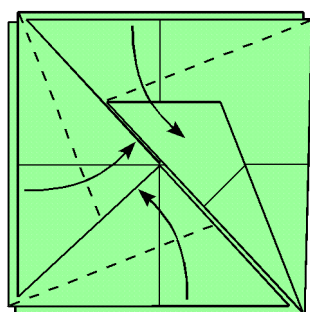16. Now make all four folds simultaneously. The result should look like picture 17.

17

17. This is the result. The next picture is on a larger scale.
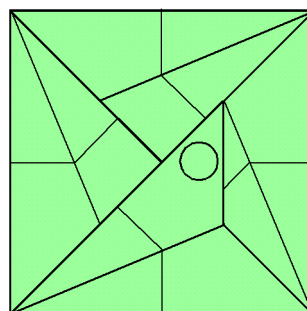
18

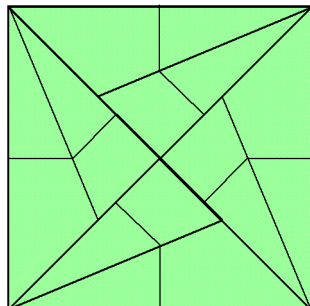18. Fold one of the top flaps in half inwards like this.

19

19.   Repeat this fold on the other three top flaps working anticlockwise around the design.

20

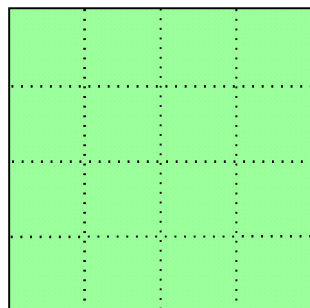20. Tuck the flap marked with a circle into the pocket behind it.

21

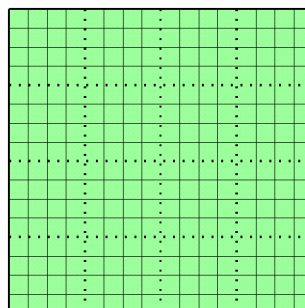21. This is the result. This rotor pattern is a classic motif of origami design. Practice is over.

Windfarm tessellations can be made in many sizes. These diagrams show you how to make a tessellation of sixteen rotors from a square. You will need a large square of thin but strong paper to do this with.

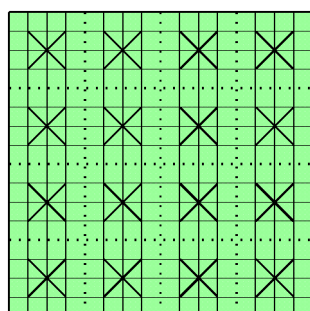**22**

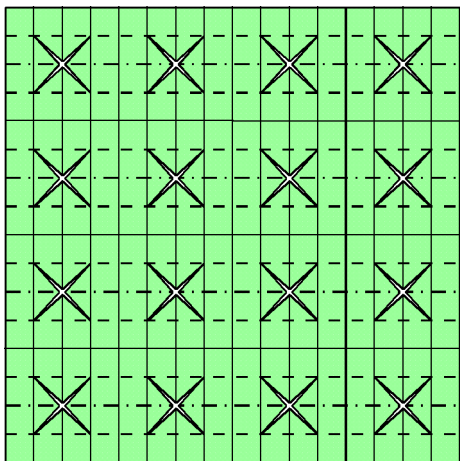22. Begin by dividing the square into a 4x4 grid.

23

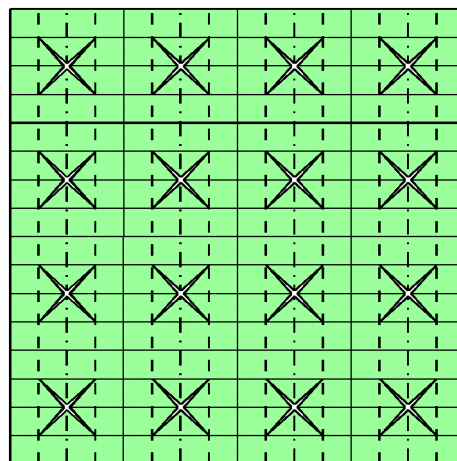23. Sub-divide each of the smaller squares into a 4x4 grid as well.

24

24. Cut the X slits as shown here. Try to crease the paper as little as possible as you do this.
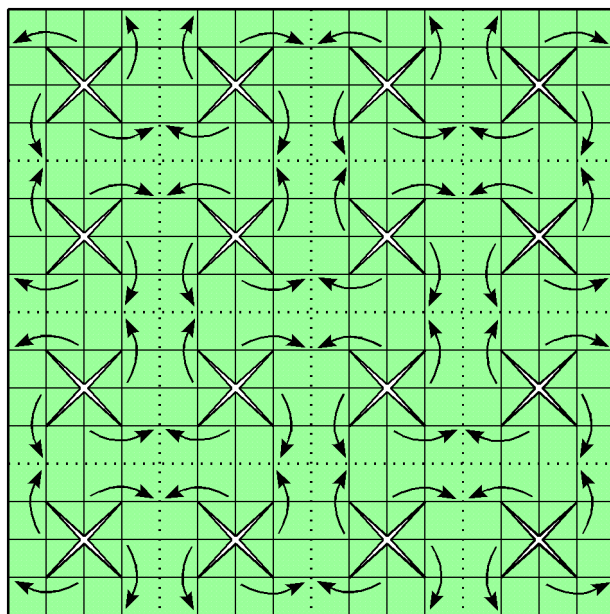
25

26

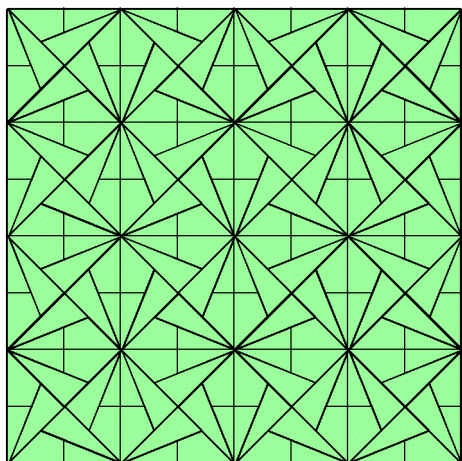25. Assign all these horizontal creases as either mountainfolds or valleyfolds as shown.

26. Assign all these vertical creases as either mountainfolds or valleyfolds as shown.
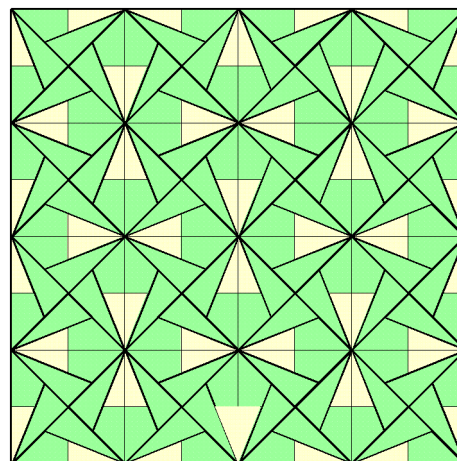
27

27. This diagram shows the direction of rotation of the folds in each cell. Note that the flaps in adjacent cells rotate in opposite directions. The direction of rotation does not affect the assignment of the creases as mountains or valleys, although not all the valley folds are used. In theory all these folds should be made simultaneously. In practice it is best to start the collapse from one corner and work outwards. Each of the rotors can then be formed from the cluster of four flaps within a cell in the way shown in pictures 16 through 19, which you have already practiced.

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28. The result should look like this. Windfarm is finished.

29

29. A different pattern will appear if Windfarm is held up to the light.

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