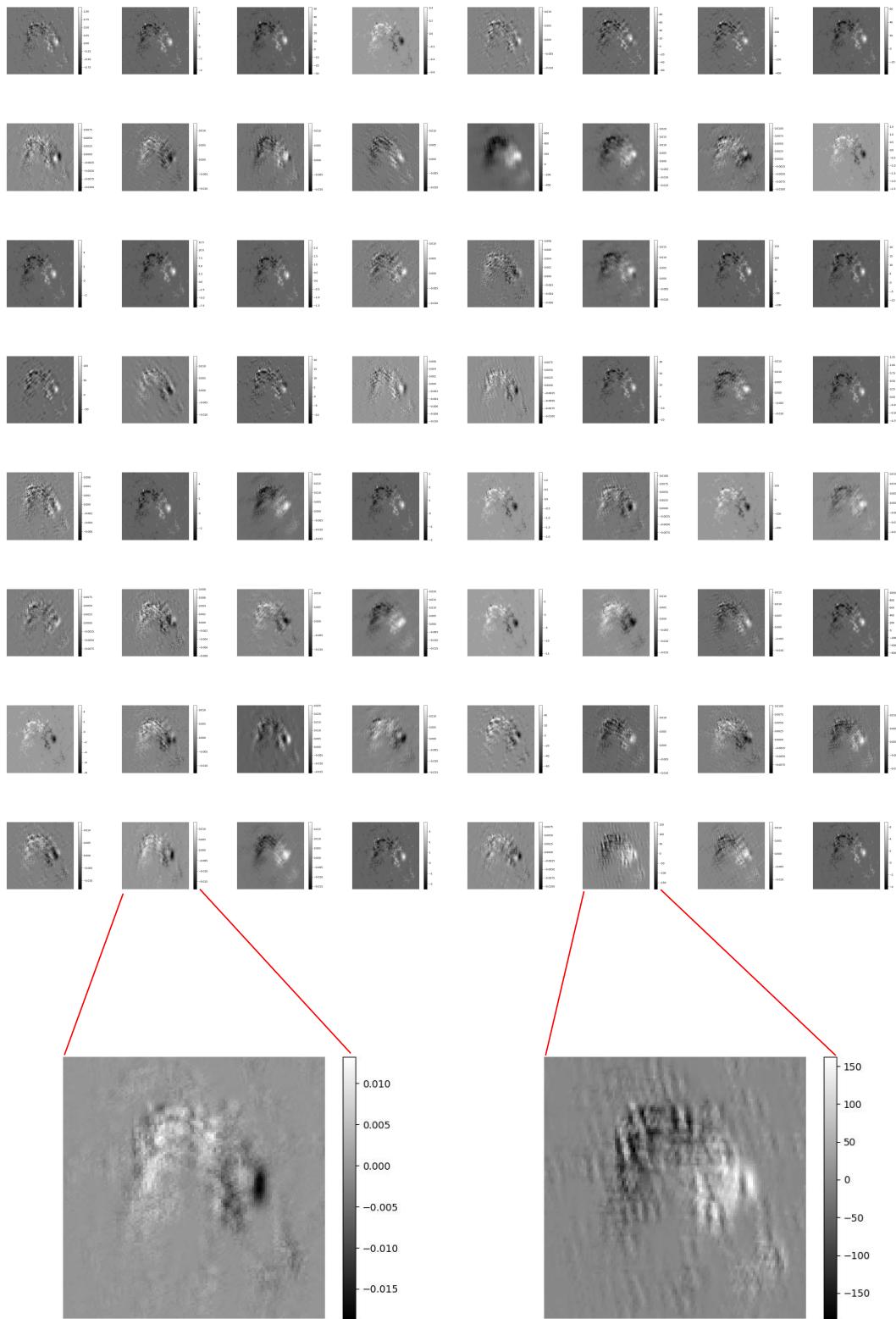
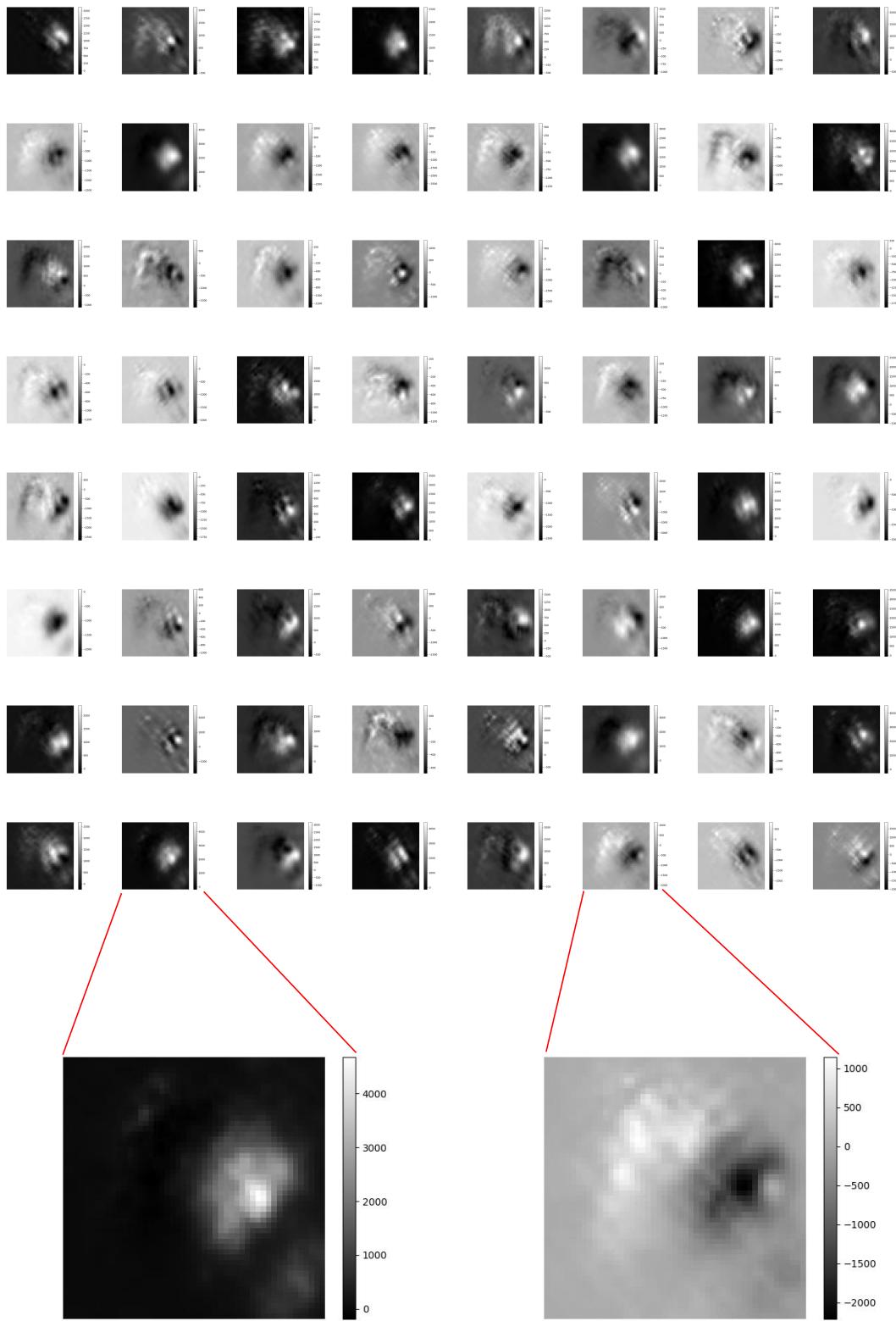


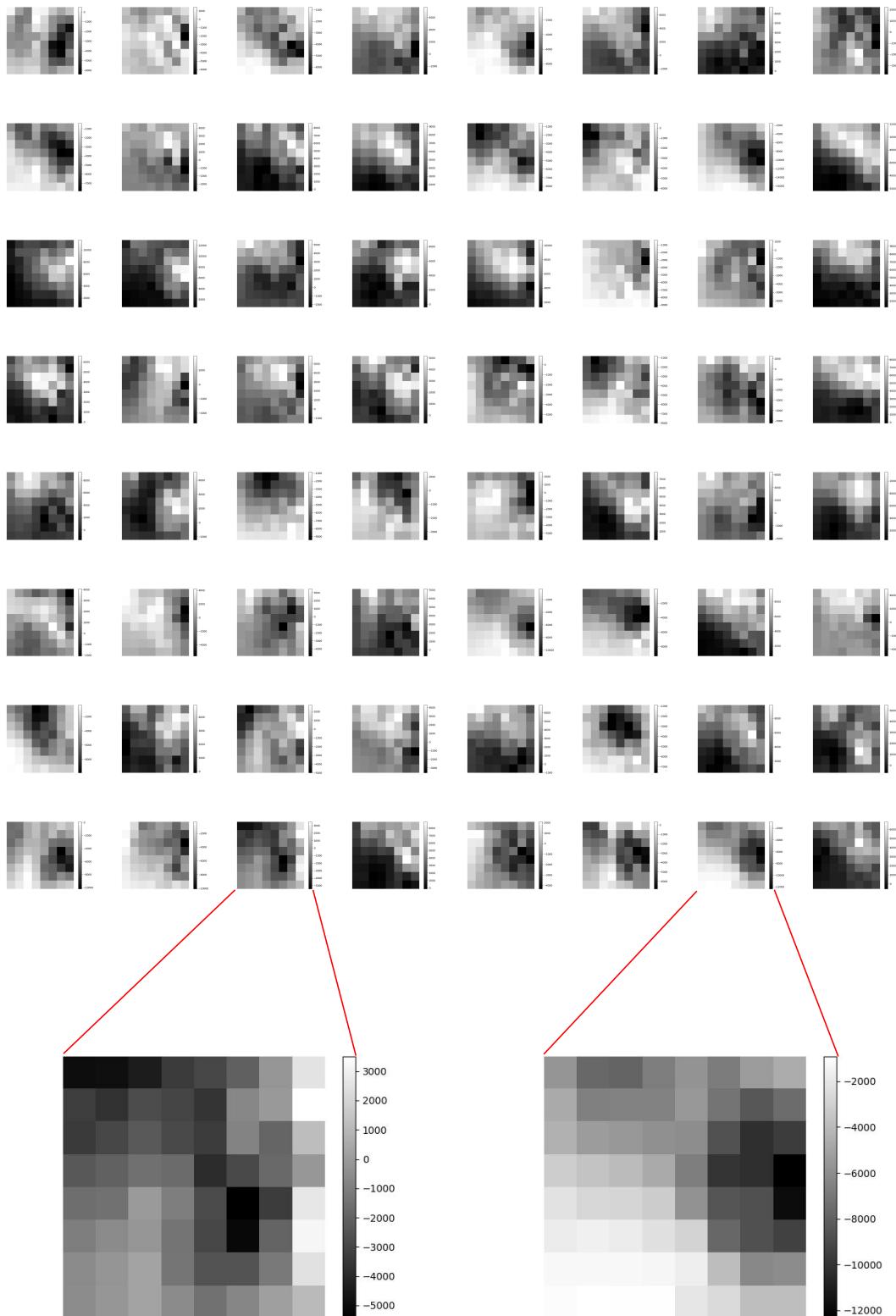
(a) Input image (128×128 pixels)



(b) Conv1 (64 feature maps, 118×118 pixels)



(c) Conv2 (64 feature maps, 49×49 pixels)



(d) Conv5 (64 feature maps, 8×8 pixels)



(e) Horizontal gradient images for the Conv5 feature maps ( $8 \times 8$  pixels)

Figure C1. The feature maps with colorbars from different convolutional layers for the model and the horizontal gradient images for the feature maps of the last or fifth convolutional layer in high performance prediction. (a) shows the input image as the input for the model, which is the LOS magnetogram sample of X-class AR 11890 observed at 19:36 UT on 2013 November 7. (b), (c) and (d) show the outputs of the first, second, and fifth convolutional layers, respectively. (e) shows the horizontal

gradient images for the feature maps of the fifth convolutional layer. The values on the colorbars are in Gauss units for (a)-(d) and in Gauss per pixel units for (e) respectively, and they can be clearly seen by zooming in.